NATIONAL CLEARINGHOUSE FOR MENTAL HEALTH INFORMATION

MENTAL RETARDATION ABSTRACTS

VOL. 5, NO. 2

MAY 1968

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Public Health Service

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
National Institute of Mental Health
Chevy Chase, Maryland 20203

MENTAL RETARDATION ABSTRACTS is a publication of the National Clearinghouse for Mental Health Information, National Institute of Mental Health. It is a specialized information service designed to assist the Institute in meeting its obligation to foster and support laboratory and clinical research into the nature and causes of mental disorders and methods of treatment and prevention. Specifically, this service is intended to meet the needs of investigators and other workers in the field of mental retardation for rapid and comprehensive information about new developments and research results, and to foster maximum effective utilization of these results. Mental Retardation Abstracts is prepared under contract with the American Association on Mental Deficiency. It is available gratis to professional workers actively engaged in the field of mental retardation; other interested persons may purchase copies from the Government Printing Office. Professional workers who wish to receive the abstracts should write to the Clearinghouse describing their professional activities in this field. Requests to receive the publication, address changes, and other communications concerning the abstracts (except orders to the Superintendent of Documents) should be addressed to:

Mental Retardation Abstracts
National Clearinghouse for Mental
Health Information
National Institute of Mental Health
5454 Wisconsin Avenue
Chevy Chase, Maryland 20203

Use of funds for printing this publication approved by the Director of the Bureau of the Budget, April 27, 1965.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402. Subscription price per year in the United States, Canada, and Mexico, $3.00; other countries, $3.75. Single copy, $1.00. The Clearinghouse does not sell copies of Mental Retardation Abstracts. Persons wishing to purchase single copies or subscriptions should send their orders directly to the Superintendent of Documents accompanied by check or money order.

MENTAL RETARDATION ABSTRACTS

Volume 5, Number 2 May 1968

TABLE OF CONTENTS

Abstracts 177

Broad Aspects of Mental Retardation 177

Medicine and Allied Sciences 181

Diagnosis (General) 181

Prevention and Etiology (General) 185

Etiologic Groupings 186
Infections, intoxication, and hemolytic disorders 186
Trauma or physical agent 200
Disease or disorders of metabolism, growth, or nutrition 204
New growths 224
Unknown prenatal influence 225
Unknown or psychogenic cause with reaction manifest 230

Convulsive Disorders 236

Genetic Disorders 238

Professional Services 252

Miscellany 256

Development: Physical, Emotional, and Social 261

Language, Speech, and Hearing 269

Mental Processes 273

Research and Theory 273
Learning and motivation 273
Nature of intelligence 279
Perception 280

Psychodiagnostics 282

Education 285

Philosophy, Administration, and Supervision 285

Facilities, Curricular Provisions, Materials, and Methods 289

Teaching Personnel 296

Vocational Habilitation-Rehabilitation 297

Recreation 305

TABLE OF CONTENTS

Institutional Programs and Services 307

Philosophy, Administration, and Supervision 307

Admission, Adjustment, and Discharge 308

Services, Programs, and Facilities 308

Personnel and Staff Development 311

Community Programs and Services 312

Protective Programs and Services 315

Mental Retardation Planning and Legislation 315

Parents and Family 316

Religion 318

Selected Journals 319

Author Index 321

Subject Index 329

BROAD ASPECTS OF MENTAL RETARDATION

530 Hastings, Marguerite J. Moving ahead. American Journal of Mental Deficiency, 72(1):5-9, 1967.

Both quality and quantity of services for all may be increased by combining aid to the MR with basic health, mental health, education, and welfare services for the whole community (where possible) and reserving specialized aid for those MR unable to use generic services. This holistic approach would make more effective use of the limited number of trained personnel and funds available. Provision of the basic services for the total population can help prevent some handicapping conditions, and the use of consultants knowledgeable in MR could provide the "pluses" that would enable these agencies to give continuing services to the MR. (3 refs.) - E. F. MacGregor.

Program Services, Mentally Retarded
State Department of Mental Hygiene
Baltimore, Maryland

531 Fonda, Charles P. What is mental retardation? In: Mansfield Training School, & University of Connecticut. The Activation of Neuromuscular Mechanisms to Facilitate Sequential Development. (Proceedings of the Fifth Conference of the Mansfield-UCONN Seminars on Atypical Development, December 10, 1965), Mansfield Depot, Connecticut, 1967, p. 8-10, Mimeographed.

The most provocative and useful specification of the AAMD's definition of MR is the requirement that early-childhood, sub-average intellectual functioning be manifested by impairment in adaptive behavior. The inclusion of the adaptive behavior specification indicates that MR may be "curable" because cultural requirements for adaptive behavior are different for adults than for children and because techniques, programs and procedures aimed at modifying adaptive behavior impairments may be developed. Programs at the Mansfield Training School, Mansfield Depot, Connecticut, are aimed at exploring the adaptive behavior limits of profoundly MR patients, developing self-care habits in SMRs, and discovering potentialities of mongoloid children. (No refs.) - J. K. Wyatt.

Mansfield Training School
Mansfield Depot, Connecticut 06251

532 Kanner, Leo. Medicine in the history of mental retardation: 1800-1965. American Journal of Mental Deficiency, 72 (2):165-170, 1967.

Medical concern began with the physiologically oriented educational achievements of Itard and Seguin. Guggenbühl's work with cretins led to residential facilities and to interest in prevention and amelioration, but not until Down and Ireland was the unitary concept of MR broken. Proliferation of clinical types by individual specialists produced few therapeutic implications. Følling's discoveries in phenylketonuria revived therapeutic concern and stimulated more widespread medical interest. Since 1950 parents and the Federal Government have spurred increasing interprofessional involvement. The current burgeoning work in medical laboratories should include an awareness of practical educational, psychological, and sociological issues. (12 refs.) - (Source: AJMD).

The Johns Hopkins University
School of Medicine
Baltimore, Maryland

533 Group for the Advancement of Psychiatry. Mild Mental Retardation: A Growing Challenge to the Physician. Committee on mental retardation. New York, New York, Volume VI, Report No. 66, September 1967, 50 p. $1.00.

In the field of MR, the physician has a part in problems of etiology, diagnosis, prevention, treatment, and counseling of patients and parents. Studies have shown that children with mild MR come from 1 of 2 family groups. Group A (the majority) are large, lower socioeconomic group families who frequently have disorganized structure, little education, multiple cases of MR, and who do not voluntarily seek aid for the affected individuals. MR in these people is usually found by school or public health agencies, and they tend to become a source of concern for public agencies. Group B are smaller, better educated, higher socioeconomic class families who are achievement and future oriented and who recognize the defect and seek aid on their own account. Since organic defects are rarely present and MR is mild, the first diagnostic clues may be slow speech and/or motor development, inability to properly socialize with peers, and poor school achievement, particularly reading. These can all result in behavioral problems. Therefore, observation of a child who has had a physical hazard or presence in a poor social milieu is mandatory. Etiological fac-

tors are of 3 types: organic, sociocultural, and psychological. The prevention, treatment, training, and rehabilitation of these children will depend to a large measure on awareness of the etiological factors and the steps taken to overcome them. The physician must broaden his role from one of strictly medical diagnosis and treatment to counseling and advising the parents and patient regarding the disease and the steps which can be taken in solving the problems and insuring proper scholastic and vocational rehabilitation. Furthermore, he may become engaged in various legal matters related to these patients. He must also be an active participant in obtaining more and better programs for prevention and care. (13 suggested readings) - E. Gaer.

CONTENTS: Diagnosis and Psychopathology; Etiology and Prevention; Treatment; The Law; Summary and Conclusion.

534 Wollen, W. Progress in medical aspects of mental subnormality, Nursing Mirror, 124(7):vii-x, xvi, 1967.

Historically, treatment of the MR can be described in terms of: (1) inadequate standards of care, (2) lack of treatment, and (3) lack of community support interest. It is now recognized that the essential provisions of an efficient service for the MR should include: early recognition; full assessment with periodic reassessments; expert medical, surgical, and psychiatric treatment; and appropriate training and habilitation. Although considerable progress has been achieved in biochemisty, genetics, and dermatoglyphics, the majority of MRs are still classified as "unknown etiology." Modern methods of care, treatment, and training are designed to give the MR every opportunity to develop to his full potential and gain acceptance as a member of the community. (No refs.) - A. Clevenger.

Darenth Park Hospital
Kent, England

535 Talbot, Mabel. Édouard Seguin. American Journal of Mental Deficiency, 72(2):184-189, 1967.

A review of the work of Édouard Seguin reveals a complex political, social, medical and educational involvement in the welfare of mentally defective individuals. Seguin inspired and aided medical educators in the United States in the building of a lasting educational and research structure. His educational system, based upon psychological constructs, sociological principles and learning theories more generally regarded as products of the twentieth century, was far in advance of its time; it might still serve as a blueprint for current educational planning and research design in the area of mental defect. (11 refs.) - (Source: AJMD).

Kent State University
Kent, Ohio

536 Luckey, Bertha M. The contributions of psychology to the problems of mental retardation with some implications for the future. American Journal of Mental Deficiency, 72(2):170-175, 1967.

The interest of psychology in MR dates from the rise of quantitative methods in Germany and England and the interests in child development and individual differences at the turn of the century. From the time of Binet, mental testing was used to clarify the concept and to identify cases. Instruments for the measurement of perceptual and social behavior were added, with increasing attention to qualitative as well as quantitative aspects of behavior. Longitudinal studies, studies of learning, and experimentation with behavioral modification followed. The future calls not so much for more refined experimental analysis as for greater attention to global and practical problems. (13 refs.) - (Source: AJMD).

537 Crovitz, Herbert F., Schiffman, Harold, & Rees, J. N. Simulation of mental deficiency: The stupid-reader effect. Psychological Reports, 20(3, I): 834, 1967.

Simple methods for blocking the flow of speech and for blocking the understanding of simple written material are described. The methods externally impose a kind of perseveration. Using them, the integration of information over time is made difficult for normal intelligent Ss. The question is whether internal analogs of these externally imposed treatments exist when normal Ss forget what they were on the verge of saying, and when mental defectives fail to integrate information. (No refs.) - (Source: Psychological Abstracts, 41(10):1427, 1967).

Veterans Administration Hospital
Durham, North Carolina

538 U. S. Public Health Service, Mental Retardation Division. A Chance to Help: The Story of SWEAT. (Public Health Service Publication No. 1570) Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, No date, 13 p. $0.25.

SWEAT (Student Work Experience and Training) is a vacation work program for high school and college students sponsored by the MR Division of the U. S. Public Health Service. Seven hundred students were placed at 50 institutions in the summer of 1966 under SWEAT grants to encourage them to consider careers in the field of MR. The brochure contains numerous photographs to illustrate the students' experiences. (No refs.) - J. Snodgrass.

539 McBain, Kenneth A. The university center for research and training in mental retardation - a community service. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 11 p., Mimeographed.

The Center for Mental Retardation and Child Development at the University of Washington (funded under Public Law 88-164) is made up of 2 divisions: a section doing basic research in developing biology, perinatal biology and the neurological sciences; and an affiliated component composed of an experimental education program, an applied behavioral research program, and a training and diagnostic program. While research is vital and ultimately has great rewards, service and community involvement are of more immediate concern to many people. Under the experimental education program, teachers from the public schools are trained in the application of basic-behavioral-function analysis and then sent back to the regular schools to set up a "special resource" classroom and to help other teachers utilize these techniques in the regular classrooms. This kind of program could fill the gap between regular and special education classes. The diagnostic and training unit treats over 8,000 patients a year; co-sponsors workshops, seminars and continuing-education courses; helps establish and coordinate community MR clinics; and cooperates with the State Health Department in presenting an annual State MR Workshop. (No refs.) - E. F. MacGregor.

University of Washington
Seattle, Washington

540 Bayes, Kenneth. The Therapeutic Effect of Environment on Emotionally Disturbed and Mentally Subnormal Children. London, England, Unwin Brothers, 1967, 58 p. (Price unknown).

A survey of current thought and research findings on the role of physical environment in treatment of emotionally disturbed and MR children indicates that the specific type of form and color used in a building design can have a positive or negative therapeutic effect. The new discipline of architectural psychology represents an attempt by architects to understand the specific needs of those who will occupy their buildings so that building design can satisfy both physical and psychological needs. Homes and schools for exceptional children need to be planned along sociopetal lines in order to encourage the growth of stable interpersonal relationships. Buildings of this type allow for unobtrusive transition among social areas designed to reflect complete privacy, intimate association, or public grouping. Sociofugal plans should be avoided because they employ arrangements and shapes that discourage the development of human relationships. Ambiguity should also be avoided. Spaces and rooms need to be clearly defined and easily recognizable. Buildings for children should provide a private place for each child, be related to a child's scale, have childlike attributes, and provide a sense of security and familiarity. Movement routes should be planned so that changing views and a succession of visually significant experiences are provided for children moving from one place to another. The color of a specific room can be related to its activity or can express the personal preference of the child occupying it. Color has been successfully used to teach MR children to identify personal possessions. Variety and contrast in lighting intensity can be used to meet specific needs. Lighting should insure clear recognition of form. (97 refs.) - J. K. Wyatt.

CONTENTS: Elaboration of Terms and Subject; Background Studies; Planning and Form; Color; Other Sensory Perceptions; Future Approach to Research.

541 Vanston, A. Rorke. A new deal in design for the mentally retarded. Architectural Record, 141(2):148-155, 1967.

Modern architectural plans for MR facilities reflect a new philosophy of care characterized by recognition of the MR's right to an environment as normal as possible and to greater consideration of his personal dignity. Size of the facility (500 beds or less),

nearness to home environment and to community facilities are major considerations in creating a more normal living pattern. Warmth and beauty of surroundings and design that permits small groupings of individuals are important to the happiness and psychological development of the residents. Exterior and interior views, floor plans, and ground layouts are given for 3 institutions in 3 different styles. (No refs.) - E. F. MacGregor.

Division of Mental Retardation,
Rehabilitation Services
Administration
4040 North Fairfax Drive
Arlington, Virginia 22203

542 South Eleventh Street School (for retarded children), Newark, New Jersey. Architects' Exchange, 15(2):14-15, 1967.

This brief, general description of a 20-room school for the MR focuses on construction needs, costs, and special features designed specifically to meet the special needs of the children and personnel. Proposed floor plans and a sketch of the front elevation are also included. (No refs.) - E. F. MacGregor.

543 Twin schools on three levels. Architectural Forum, 120(3):180-185, 1967.

To take advantage of a central location and a sloping lot, schools for the retarded and the deaf were combined in one building divided into 3 levels. The retarded have the bottom level with the entrance on one street. The deaf have the top level with entrance on the other street. They share the middle level. Exterior and interior views and floor plans are shown. (No refs.) - E. F. MacGregor.

544 U. S. Health, Education, and Welfare Department. Mental Retardation Grants: Fiscal Year 1966. (Secretary's Committee on Mental Retardation.) Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, September, 1966, 139 p.

Grants awarded in the field of MR by agencies of the Department of Health, Education, and Welfare for the fiscal year 1966 are listed by state. The list is designed for state groups involved in comprehensive planning to combat MR. Funds available under the state formula grant programs of the Crippled Children's Services, Maternal and Child Development Services, and Vocational Rehabilitation are also listed in terms of federal grants and matching state funds. (4 refs.) - C. A. Pepper.

545 U. S. Health, Education, and Welfare Department. Mental Retardation Publications. (Secretary's Committee on Mental Retardation.) Washington, D. C., December, 1966, 49 p.

The 173-item bibliography consists of annotations of publications (including reprints of articles selected from professional journals) of the U. S. Department of Health, Education, and Welfare concerned with MR. All but 1 item was originally published during or after 1960. Areas covered include: legislation and federal programs, specific handicapping conditions, institutions, home care, detection, diagnosis, rehabilitation, education, employment, and family. Also included are 10 films available on a free-loan basis. (183 refs.) - C. A. Pepper.

546 Bibliography of Developmental Medicine and Child Neurology: Books and Articles Received in 1966. Developmental Medicine and Child Neurology. Supplement No. 12, London, England, William Heinemann Medical Books, 1966, 79 p. $1.00.

The bibliography includes 154 books and 854 articles received from 141 journals in 1966 by the Spastics Society Medical Education and Information Unit. Topics include genetics, cytogenics, teratology, developmental studies and anomalies, prematurity, Down's Syndrome, neonatal studies, birth injury, neurophysiology, neuropathology, epilepsy, cerebral palsy, mental handicaps, and disorders in communication, metabolism and muscles. (1,008 refs.) - C. A. Pepper

MEDICINE AND ALLIED SCIENCES

DIAGNOSIS (GENERAL)

547 Haka, Katerina K. Diagnostic approaches to mental retardation. Clinical Proceedings of Children's Hospital of the District of Columbia, 23(8):239-250, 1967.

The diagnostic approach to MR is complex and depends on the age of the patient, the type of defect, and its severity. Physicians caring for children should have age-appropriate screening procedures for developmental milestones and should recognize that motor skills are often less retarded than personal-social aspects. High-risk groups such as those with complicated pregnancies, family history of MR or neurologic disease, perinatal distress or injury, and infection of the brain should be closely evaluated. In general, the earlier the diagnosis can be made, the more severe the defect. Older children develop higher, more complex functions and are more difficult to assess. A team composed of pediatrician, neurologist, child psychologist, social worker, public health nurse, and speech-and-hearing therapist, working in consultation with other specialties, is best for optimal diagnosis and treatment of a child with MR. (31 refs.) - W. A. Hammill.

Georgetown University Hospital
Washington, D. C.

548 King, Lester S. What is a diagnosis? Journal of the American Medical Association, 202(8):714-717, 1967.

A particular diagnosis must meet certain criteria, which may vary according to the training, sophistication, intended use, and intuition of the person making it. A diagnosis places a disease in a specific category of diseases to the exclusion of all others, and to do this accurately one must have a knowledge of the various diagnostic categories and their distinguishing features. Whereas a layman's self-diagnosis of a group of symptoms may be quite broad and non-specific, a physician, because of his training and knowledge, can be more precise and discriminating. While diagnostic precision enables a physician to treat a patient with greater skill, some information, however, is too complicated to be of clinical value. Furthermore, instead of new knowledge simplifying and bringing disease concepts up-to-date, such knowledge is often added to older information, resulting in further complications in the understanding of disease categories. While knowledge about the distinguishing characteristics of diseases can be and is taught, it is intuition or judgment on the part of the individual physician which enables him to recognize a specific disease. Whether this judgment or intuition can be taught, however, is open to question. (5 refs.) - E. Gaer.

535 North Dearborn Street
Chicago, Illinois 60610

549 Wortis, Helen, Jedrysek, Eleanora, & Wortis, Joseph. Unreported defect in the siblings of retarded children. American Journal of Mental Deficiency, 72(3): 388-392, 1967.

In a preliminary study, siblings of patients in a child psychiatry clinic that was especially interested in MR were given psychological tests. Unreported MR was found in 15 of 102 siblings. Each of these had been described as normal by the mother. Siblings with unreported deficit were younger and less defective than the clinic patients and were found most often in families of low social class, in families already known to have more than 1 affected sibling, and in the siblings of retarded psychotic children. Although the mothers had not reported the deficit, most appeared to recognize the child's condition. Reasons for the failure to report the deficit include: (1) the parents of low social class have lowered expectations and demands of the child; (2) the younger, less severely damaged child may appear normal when compared to the older MR sibling; and (3) the presence of a second MR child in the family is too ego-damaging to the parents. (4 refs.) - (Source: AJMD, edited).

The Jewish Hospital of
Brooklyn
Brooklyn, New York 11238

550 Battaglia, Frederick C., & Lubchenco, Lula O. A practical classification of newborn infants by weight and gestational age. Journal of Pediatrics, 71(2):159-163, 1967.

A classification system of newborn infants based on birth weight and gestational age is presented with the suggestion that useful and vital information can be obtained by superimposing the birth-weight and gestational age data on a neonatal mortality rate chart. This classification divides newborns into 9

groups - 3 groupings by gestational age further subdivided into 3 groupings by birth weight. The gestational age groupings are referred to as pre-term (before 38 weeks), term, and post-term (after 41 weeks). The tenth and ninetieth percentile groupings are used for subdivisions by weight. Newborns whose data indicate a death risk of 25 percent or greater can be transferred immediately to a high-risk nursery for close observation. (6 refs.) - R. Froelich.

University of Colorado Medical
Center
4200 East 9th Avenue
Denver, Colorado 80220

551 MacKeith, Ronald. The "at risk" infant. Lancet, 2(7521):886, 1967. (Letter)

Exception was taken to the previous statement that developmental and neurological assessment is difficult and of limited value before 10 months. Detection of disorders which require immediate treatment is neither difficult nor inefficient before 5 months. It was also pointed out that suitable methods of screening for sensory, motor, intellectual, emotional, and social defects continue to be developed and that such methods for assessing sight and hearing have been in existence for years. (No refs.) - J. Snodgrass.

Newcomen Clinic
Guy's Hospital
London, S.E.1, England

552 Robson, Peter. The "at risk" infant. Lancet, 2(7521):886-887, 1967. (Letter)

The "at risk" concept of infant screening was said to be the most advantageous deployment of available staff. Redefinition of at risk factors should be done before the concept is rejected. Seventy percent of cerebral palsy cases, 25 percent of uncomplicated MR, and most deafness could be discovered 1-4 years sooner with complete at risk screening.

Guy's Hospital Medical School
London, S.E.1, England

553 Howorth, Irene E. The "at risk" infant. Lancet, (2(7521):887, 1967. (Letter)

Screening of children with "at risk" factors is likely to uncover a large proportion of deafness in early childhood. In previously reported research, deafness was 14 times more common among children at risk than among the rest of the population. (1 ref.) - J. Snodgrass.

Health Department
East Cliff County Offices
Preston, PR1 3JN
Lancashire, England

554 Southby, Robert. Who is responsible professionally for the non-communicating child? Rehabilitation in Australia, 5 (1): 7-9, 1967.

Maximum help in assisting children who cannot communicate-be it due to hearing, seeing, or mental development-comes from early diagnosis and assessment by a team. This team includes geneticist, obstetricians, pediatricians, and nurses, but it should be extended to include lay persons and independent observers who may be biased but often present insightful evidence with regard to development. (No refs.) - C. A. Pepper.

Department of Health
Victoria, Australia

555 Ritvo, Edward R., Ornitz, Edward M., & Walter, Richard D. Clinical application of the auditory averaged evoked response at sleep onset in the diagnosis of deafness. Pediatrics, 40(6):1003-1008, 1967.

Electroencephalograms (EEG) recorded with auditory stimuli during early stages of sleep can establish the presence of hearing deficit in uncooperative and disturbed children. Early sleep EEGs were recorded in 18 normal children (ages 3-12 years), 7 normal babies (ages 7-15 months), 13 autistic Ss (ages 2-7 years), and 3 Ss with suspected hearing loss who had equivocal audiometric evaluation with the usual techniques. Standard EEGs were recorded, and the central to occipital leads

were used for evaluation of average evoked response (AER) to 100 consecutive clicks at 80 decibels above adult threshold. All 18 normal children, 6 of 7 babies, and all 13 autistic Ss had positive AERs. None of the 3 Ss with suspected hearing loss had positive AERs, and the hearing deficit was supported by clinical follow-up. The AER represents a complex multisynaptic central integration of auditory perception and is only a qualitative evaluation of hearing, but offers significant help in diagnosing Ss who previously could not be evaluated. (16 refs.) - W. A. Hammill.

760 Westwood Plaza
Los Angeles, California
90024

556 Children's Bureau, Welfare Administration. Vision and Hearing Screening in Selected Classes for the Mentally Retarded - City of Detroit, Michigan. Washington, D.C., U. S. Government Printing Office, Superintendent of Documents, 1966, 10 p.

The incidence and prevalence of visual and hearing problems in selected classes for the MR in Detroit, Michigan, was determined by screening procedures. A total of 1,023 children were screened for visual problems; this included the enrollment of 67 classes in 22 schools located in the lowest socio-economic area of Detroit. The CAs ranged from 3-21 years, with a mean of 12.6 and an IQ range of 30-75 and a mean of 64. Assessment included: visual acuity, a lens test, and a muscle balance test. The results indicated that there was a higher percentage of children with uncorrected vision defects in the classes for the MR than in the regular classroom. A total of 302 (30 percent) were referred for an eye examination (in comparison with the statewide referral rate of 10.4 percent). Twenty-one percent failed various combinations of the three tests. The use of a battery of visual tests was highly desirable, as a large number of referrals would have been missed if only 1 test had been used. A pilot program of 688 children was screened for hearing loss. This group had a mean CA of 12.6 years and a reported IQ of 64. A pure tone air conduction audiogram was prepared for each child using standard audiometers. Hearing loss was defined when his hearing deviated by 15 db or more at 1 or more frequencies. Of the 688 children tested, 11 percent were found to have a hearing loss which is 2.7 times greater than the general population. The incidence of potentially correctable conditions was also greater. (No refs.) - B. Bradley.

557 Sperm chromosomes sit for a portrait. Medical World News, 8(37):48, 1967.

A technique which produces pictures clear enough to reveal chromosomal abnormalities has been devised for visualizing developing sperm. Cells from the seminiferous tubules of testicular biopsy specimens are broken open, fixed, stained red, and photomicrographed. All 23 meiotic pairs can be seen while the X and Y chromosomes are still joined and while they are separating. Further analysis of results is being attempted with electronic scanning and computer analysis. Aberrations may ultimately be corrected by microsurgery. (No refs.) - J. Snodgrass.

558 Kolar, Oldrich, & Zeman, Wolfgang. Spinal fluid cytomorphology: Description of apparatus, technique, and findings. Archives of Neurology, 18(1):44-51, 1968.

The morphology of cells in spinal fluid collected by spontaneous sedimentation offers diagnostic information in many cases of central nervous system disease. Spinal fluid is placed in tubes 12X48 mm held to a standard glass slide by a variable weight. Filter paper between the edge of the tube and the slide allows diffusion of the spinal fluid, and the cells settle on the slide. Filtration rate is determined by the amount of weight on the tube so that sedimentation occurs in 30-40 minutes. Cellular architecture is preserved, and abnormal cells are often seen in the presence of normal cell counts. Normal fluid contains 60-80 percent lymphocytes, the remainder being reticulomonocytes. Pathognomonic cellular alterations are seen in subarachnoid hemorrhage, neoplastic disease, and demyelinating disorders. The technique offers potential for diagnosis as well as investigation of etiology and pathogenesis of central nervous system disease by providing viable undistorted cells in adequate numbers for study. (8 refs.) - W. A. Hammill.

Indiana University Medical Center
1100 West Michigan Street
Indianapolis, Indiana 46207

559 Maynard, C. Douglas, Hanner, T. G., & Witcofski, Richard L. Positive brain scans due to lesions of the skull. Archives of Neurology, 18(1):93-97, 1968.

False positive radioisotope brain scans may be produced by lesions of the bones of the skull rather than intracranial abnormalities. Forty-four of 2,000 routine brain scans were

positive primarily because of skeletal lesions. Specific lesions were craniotomy defects (15), burr holes (9), hyperostosis frontalis interna (6), hemangioma (1), fibrous dysplasia (1), and malignant tumor of bone (12). Scan abnormalities are probably produced by the altered vascularity of the bone lesion. To avoid false positive brain scans, correlation with skull films is necessary. (17 refs.) - W. A. Hammill.

Bowman Gray School of Medicine
300 South Hawthorne Road
Winston-Salem, North Carolina
27103

560 Mazur, Roman, Mazur, Elzbieta, Stolyhwo, Andrzej, & Melis, Roger. An apparatus for detecting intracranial fluid. Developmental Medicine and Child Neurology, 9(5):573-575, 1967.

A new device (hydrocephalometer) for measuring the extent and intensity of light dispersed in the normal and abnormal components of the head is described and the technique for its use presented. A 25-watt bulb was the stabilized source of light which ensured an unchanging intensity of light. The optical system consisted of a mirror, a series of lenses, and a photoelectric sensor. A spring and telescopic suspension allowed the apparatus to cling tightly to the head. A high resistance FOK-3 type photoresistor was used to measure the pathological luminescence. An illuminated microammeter was used. The measurement system was very highly sensitive. The technique of use included 7 different sites on the skull for placing the apparatus. The significant findings include a general increase in skull luminescence and an asymmetry of luminescence. The latter is often the most informative. The most important areas for obtaining information are the frontal area and the fronto-parietal area. Thick hair interferes with luminescence. The variations in normal infants must be considered in interpreting the findings. (No refs.) - R. Froelich.

Neurological Department
Gdańsk Medical Academy
Gdańsk, Poland

561 Taylor, E. Stewart, Thompson, Horace E., Gottesfeld, Kenneth R., & Holmes, Joseph H. Clinical use of ultrasound in obstetrics and gynecology. American Journal of Obstetrics and Gynecology, 99(5):671-675; discussion, 675-682, 1967.

Clinical experience with 691 obstetric patients has shown that ultrasound is useful for preoperative diagnosis of hydatidiform mole, estimation of fetal maturity, localization of the placenta, diagnosis of multiple pregnancy, indication of fetal position, and diagnosis of intrauterine fetal death. Ultrasound was used in approximately 10 percent of the obstetric cases treated over a 3-year period at the University of Colorado Medical Center. Ultrasound was less useful in gynecology, but it did prove effective in the differential diagnosis of ascites, abdominal cysts, and peritoneal carcinomatosis. Fetal maturity was successfully evaluated in 70 of 74 patients. In 82 percent of the cases studied, fetal weight was estimated within 400 grams by averaging biparietal diameter and chest measurements. Ultrasound was 100 percent accurate in determining fetal position. Multiple pregnancies were correctly diagnosed in 22 of 23 cases. The accuracy rate for ultrasonic diagnosis of intrauterine fetal death was 94.5 percent. Of the 55 patients studied, 23 were thought to have viable fetuses and 32 were diagnosed as having intrauterine fetal death; there were 3 errors in diagnosis. The placenta was correctly localized in 97 percent of 104 patients evaluated. The most useful application of ultrasound was in the differentiation of molar pregnancy from a normal pregnancy; 98.7 percent accuracy was attained. (10 refs.) - R. Froelich.

Department of Obstetrics and
Gynecology and Medicine
University of Colorado
Medical Center
Denver, Colorado

562 Walker, W. Allan, Krivit, William, & *Sharp, Harvey L. Needle biopsy of the liver in infancy and childhood. A safe diagnostic aid in liver disease. Pediatrics, 40(6):946-950, 1967.

Percutaneous needle biopsy of the liver is a safe procedure in infants and children, and offers diagnostic help in most cases. Two hundred and ten biopsies in 166 Ss (ages 1 wk to 15 yrs) were studied using the Menghini needle technique. Routine coagulation studies were done before biopsy to be certain no bleeding problem existed. Local anesthesia was used, and only Ss over 1-year old were sedated. Indications for biopsy varied, including cystic fibrosis, leukemia drug toxicity, unexplained hepatomegaly or jaundice, glycogen storage disease, unexplained fever, and possible tumor. No serious complications were encountered. Minor complications included pneumothorax, bowel perforation, liver

hemangioma, and possible rib fracture. The pneumothorax was resolving spontaneously, but was aspirated to relieve pain. The other complications required no treatment. Meaningful information was obtained in 168 of 210 biopsies. Percutaneous needle biopsy of the liver is especially helpful in diffuse hepatic disease and may be useful in focal disease. (13 refs.) - W. A. Hammill.

*University of Minnesota
School of Medicine
Minneapolis, Minnesota 55455

PREVENTION AND ETIOLOGY (GENERAL)

563 Miller, Robert M. Prenatal origins of mental retardation: Epidemiological approach. Journal of Pediatrics, 71(3):455-458, 1967. (Editorial)

A number of prenatal factors causing MR have been studied epidemiologically, including rubella infection, inorganic mercury, ionizing radiation, inbreeding, and medications. Two epidemiological studies around 1950 did not support the impression that maternal rubella was associated with MR. A more recent study showed much different results with 18 percent of infected infants with MR. An epidemiological study in Japan has shown that chemical, inorganic mercury causes MR. Fish living in Minamata Bay, Japan, have high contents of mercury and when eaten by mothers can cause MR and cerebral palsy. Chemical analysis of organs at autopsy has confirmed this. Ionizing radiation exposure to pregnant women was known to cause microcephaly and MR in the fetus as early as 1929. This was again demonstrated following the atomic bomb explosion in Hiroshima. The frequency of MR was doubled among children of first cousins in Japan as compared to controls. The epidemiological approach to MR can yield important information and shows great promise for the future. Some inherent problems are the relative infrequency of MR and its multiple variations. (16 refs.) - R. Froelich.

564 Battaglia, Frederick C. Recent advances in medicine for newborn infants. Journal of Pediatrics, 71(5):748-758, 1967.

Increased understanding of the relation of obstetrical problems to neonatal disease, progress in the recognition of new neonatal disease entities, and the development of new methods of supportive care represent recent advances in medicine for newborn infants. Obstetrical complications which may precipitate fetal abnormalities include maternal age, medication during pregnancy, hypoxia from cyanotic heart disease, heavy smoking, infection, diabetes, and hyperparathyroidism. Amniocentesis, amnioscopy, and fetal scalp vein sampling may aid in diagnosis of fetal distress in Ss with predisposing factors. Supportive care of the respiratory distress syndrome includes correction of acidosis with either bicarbonate or THAM, oxygenation, hydration, and regulation of body temperature. The recognition of the small-for-gestational-age infant - a technique based on menstrual history, examination for skin creases, breast nodule size, and neurological examination - has predictive value for neonatal complications. Early diagnosis of metabolic aberrations such as hypoglycemia, PKU, and hypocalcemia will allow treatment before permanent damage occurs. Awareness of high risk in both infants and pregnant Ss, use of proper supportive measures, and correction of metabolic abnormalities will prevent morbidity and mortality in infants. (60 refs.) - W. A. Hammill.

University of Colorado
Medical Center
Denver, Colorado

565 MacKeith, Ronald. Medical care for children. Developmental Medicine and Child Neurology, 9(4):371-372, 1967. (Editorial)

The essentials of medical service for children include: (1) supporting programs that facilitate physical, intellectual, and social development as well as providing care during illness; (2) maintaining service on a universal basis regardless of economic or cultural background; and (3) promoting good health for the patient by administering early treatment, diagnosis, and immunization, by fostering stabilization of his family life, and by advancing his health education. (No refs.) - A. Clevenger.

No Address

566 Wortis, Helen. Problems of case finding and treatment of mothers at risk of producing defective infants. Cerebral Palsy Journal, 28(4):8-9, 1967.

Although the 1963 amendment to the Social Security Act increased funds for medical programs for low income pregnant women

likely to be exposed to conditions of maternal risk and allowed for the establishment of some excellent maternal care programs in selected areas, the eventual solution to this problem lies in the establishment of an over-all program of improved health services and in an increase in living standards rather than in crash programs in high risk areas. These existing programs have not been successful in identifying and involving all eligible women because: (1) some referrals must come from non-medical sources, (2) social agencies are not concerned enough with the problems of indigent pregnant women, (3) voluntary social agencies do not provide appropriate services for this group, and (4) public agencies do not deal with individual needs. The 1965 amendments to the Social Security Act, which provide funds for the beginning of a national health service, may provide a better solution for the prevention of handicap. (No refs.) - J. K. Wyatt.

Department of Pediatrics
Jewish Hospital of Brooklyn
Brooklyn, New York

ETIOLOGIC GROUPINGS

Infections, intoxication, and hemolytic disorders

567 Desmond, Murdina M., Wilson, Geraldine S., Melnick, Joseph L., Singer, Don B., Zion, Thomas E., Rudolph, Arnold J., Pineda, Rebecca G., Ziai, Mir-Hashem, & Blattner, Russell J. Congenital rubella encephalitis, Journal of Pediatrics, 71(3):311-331, 1967.

Of 100 infants with congenital rubella infection, 81 demonstrated neurological abnormalities at some point during their first 18 months of life, and 11 of 64 survivors were MR. All patients had laboratory evidence of rubella infection (virus isolation and significant antibody) or a positive maternal history. Forty-seven mothers had an illness compatible with rubella during early pregnancy. Sixty-two infants were below 2,500 grams birth weight, and 43.5 percent had significant intrauterine growth retardation. During the neonatal period, 34 infants had thrombocytopenia or purpura, 56 had congenital anomalies, and 10 had no clinical disease. Twenty infants died and 64 were followed to 18 months of age. Forty-four of the survivors had neurological abnormalities. A seizure disorder was present in 27, 74 percent of whom either died or had significant residua. Other neurological manifestations included motor deficit in 32, hyperactivity in 16, unawareness of environment in 8, hypotonic shoulder girdle in 16, and stereotyped movements in 12. Other findings were a small head (81 percent) and retardation of somatic growth. Encephalitis was a major manifestation of the congenital rubella syndrome, occuring in 69 infants and perhaps in other infants who were not adequately followed. (26 refs.) - R. Froelich.

Baylor University College of Medicine
Houston, Texas

568 Thorburn, Marigold J., & Miller, Colin G. Pathology of congenital rubella in Jamaica. Archives of Diseases in Childhood, 42(224):389-396, 1967.

Autopsy studies of 8 Ss with congenital rubella syndrome suggested similarities to experimental runt disease. The 8 Ss (newborn to 7½ months of age) had clinical features of the rubella syndrome; however, viral studies were not done. Most findings were similar to other reports of this syndrome, but cortical nephrocalcinosis, cerebral dystrophic calcification, congenital glomerulosclerosis, and thymic atrophy were also noted. Transfer of maternal lymphocytes across a viral damaged placenta into an immunologically immature fetus may initiate a graft versus host reaction, causing the growth retardation which persists long after the virus has disappeared from the host. The lack of hematologic abnormalities (lymphoma, Hodgkins disease) may be due to a different strain of virus in the present epidemic. (30 refs.) - W. A. Hammill.

University of the West Indies
Kingston, Jamaica

569 Heggie, Alfred D. Intrauterine infection in maternal rubella. Journal of Pediatrics, 71(6):777-782, 1967.

Of 44 pregnancies terminated because of maternal rubella infection in the first trimester, 18 (40.9 percent) had rubella virus recovered in the products of conception. The clinical specimens came from several hospital sources. The diagnosis of rubella was known to be confirmed by increased antibody titer in 5 patients. The products of conception

from 44 pregnancies ending in spontaneous abortion during a rubella epidemic were used for comparison. Rubella virus was isolated by tissue culture inoculation and blind passage. All 5 of those pregnant women with documented rubella virus antibody titer had conceptuses with detectable rubella virus. No virus was isolated from the products of the 44 spontaneous abortions. No significant difference of mean gestational age at time of maternal exanthem was found between the 18 women with positive cultures and the 26 women with no recoverable virus in their conceptuses. There were no cytological differences between infected and uninfected cells. The interval between maternal infection and termination of pregnancy was not related to the incidence of virus recovery. Differentiation between placental and fetal rubella infection could not be made since these two tissues were mixed at curettage. (18 refs.) - R. Froelich.

Department of Preventive Medicine
Wearn Research Building,
University Hospitals
Cleveland, Ohio 44106

570 Rapid rubella test in compact kit. Medical World News, 8(47):60, 1967.

A new, relatively simple and reliable hemagglutination-inhibiting test (HIT) packet which can detect the presence of rubella antibodies in a patient's serum within 3 hours is now being used by smaller laboratories. It contains 9 reagents necessary for 20 tests without having the problem of controlling pH, absorption requirements of serum, or other tests from an animal to a preparation of the serum and virus to be tested. If the RBC's do not clump, rubella antibodies are present. (No refs.) - E. Gaer.

571 Gilder, S. S. B. Rubella and gamma globulin. Canadian Medical Association Journal, 97(25):1549, 1967. (Annotation)

Although the true attack rate of rubella is unknown, recent studies indicate that administering prophylactic gamma globulin to susceptible pregnant women exposed to the disease has value in protecting them from clinical illness and preventing congenital deformities. In addition to the need for a safe, effective, prophylactic vaccine, a simple test for the assessment of rubella neutralizing antibodies is also necessary.

No address

572 Esterly, John R., Slusser, Ruby J., & Ruebner, Boris H. Hepatic lesions in the congenital rubella syndrome. Journal of Pediatrics, 71(5):676-685, 1967.

Review of biopsy and necropsy specimens from livers of 12 Ss with the congenital rubella syndrome revealed changes indistinguishable from those seen in infants with idiopathic neonatal hepatitis. Material from Ss aged 26 weeks of gestation to 11 months CA was examined by electron microscopy (EM), light microscopy, and enzyme histochemistry. Presence of rubella virus was established either by direct culture from the child or placenta or by seroconversion in the mother or child. Five Ss had mild hepatitis, 4 were normal, and 1 had mild cholestasis. Two Ss showed classic neonatal giant cell hepatitis, with the most severe having 50 percent of the hepatic parenchyma present as multinucleated giant cells with hyalinization in many. Extramedullary hemopoiesis occurred in all Ss up to CA 4 months. Alkaline phosphatase activity was absent or decreased in 3 Ss at the canalicular region but increased at the sinusoidal surface. Acid phosphatase reaction was increased in the hepatocytes and Kupffer cells of 2 Ss. EM showed giant multinucleated hepatocytes, dilated rough endoplasmic reticulum, abundant glycogen rosettes, bile as plugs and curlicues, and focal areas of cytoplasmic degradation. Kupffer cells were swollen, contained siderosomes, bile, and necrotic material. Increased glucose-6-phosphatase and acid phosphatase activity, coupled with hyalinization of the giant cells, suggests degenerative changes. The primary target of the virus appears to be the parenchymal cell. No changes were seen in large bile ducts in portal areas nor in the main bile ducts. Ultrastructure of rubella hepatitis is now confirmed as being similar to the previous EM descriptions of neonatal hepatitis. (23 refs.) - A. C. Molnar.

Department of Pathology
The Johns Hopkins University
School of Medicine
Baltimore, Maryland 21205

573 Menser, Margaret A., Harley, J. D., Hertzberg, R., Dorman, D. C., & Murphy, A. M. Persistence of virus in lens for three years after prenatal rubella. Lancet, 2 (7512):387-388, 1967.

Rubella virus was isolated from a cataractous lens of a 2-year-11-month-old child. The mother had a rubelliform rash in the sixth week of pregnancy. Other stigmata of the congenital rubella syndrome were MR, (Griffith MA, 6 mo; CA, 17 mo), growth retardation, and a congenital heart defect. Rubella

virus was not isolated from the conjunctiva or aqueous at the time of lens aspiration. The avascular, encapsulated structure of the lens may allow prolonged, perhaps even into adulthood, existence of virus without implicating immunologic incompetence. (17 refs.) - W. A. Hammill.

P. O. Box 34
Camperdown, New South
Wales 2050, Australia

574 Best, Jennifer M., Banatvala, J. E., Almeida, June D., & Waterson, A. P. Morphological characteristics of rubella virus. Lancet, 2(7509):237-239, 1967.

Electron microscopic display of rubella virus after aggregation of virus with antibody explains why this virus has been previously difficult to characterize. Anti-rubella serum was obtained from a human convalescing from rubella and a hyperimmune rabbit. Rubella virus (strain Judith) was propagated in baby hamster kidney cells. Specific rabbit antiserum was added to virus infected tissue culture supernatant. Human convalescent serum was similarly mixed with virus suspension. After centrifugation the pellet was fixed, stained, and examined by a Philips 200 electron microscope. Controls of uninfected tissue culture fluid and hyperimmune rabbit serum as well as virus suspension and control rabbit serum were examined with the test material in like manner. Results demonstrated pleomorphic structures that had dimensions of 500-750 Angstrom units outlined by aggregations of antibody molecules. These structures could not be detected in rubella infected specimens before using rubella antibody aggregates. (5 refs.) - W. Asher.

St. Thomas's Hospital
London S.E. 1, England

575 Marshall, W. C., Hayes, Kathleen, & Chrispin, A. R. Unusual bone abnormality in congenital rubella. British Medical Journal, 3(5556):47, 1967. (Letter)

A male, 3-week-old infant with congenital rubella showed typical metaphysical lesions, delayed development, poor mineralization, and some thickening of the skull. The right clavicle showed an area of rarefaction which expanded to normal shape at 1 year of age. This unusual lesion could represent a true osteitis due to rubella, as the mother was infected 28 days after the last menstrual period. Since the clavicle is the first bone to ossify, the time of infection may explain the localization and nature of the lesion. (4 refs.) - J. Snodgrass.

Department of Virology
Hospital for Sick Children
London W. C. 1., England

576 Warren, Robert J., Nader, Philip R., & Levine, Ronald H. Measles immune globulin. Journal of the American Medical Association, 203(3):186-188, 1968.

Serologic responses and reactions to live attenuated measles virus vaccine given with measles immune globulin in 2 different dosages were compared in children in Catawba County, North Carolina. The two dosages used were: (1) approximately 0.01 cc/lb of body weight, and (2) 0.3 cc regardless of the child's weight. Although low-grade fevers were more common in larger children (50 to 70 lb [22.7 to 31.8 kg]) given the proposed standard 0.3 cc dose, both dosages produced similar antibody responses, incidence of high temperature, and school absenteeism. (2 refs.) - (Source: JAMA)

Medical Arts Building
Richmond, Indiana 47374

577 Calafiore, Dorothy C. Eradication of measles in the United States. American Journal of Nursing, 67(9):1871-1874, 1967.

The nursing profession is in a position to play a very important role in the eradication of measles in the United States. The necessary conditions for eradication include routine immunization at 1 year of age, immunization of susceptible children at school age, reporting of measles infection, and prompt immunization of susceptibles when an epidemic occurs. A striking decrease in incidence of measles during the 1966-67 epidemiological year has occurred, but eradication has not yet been reached. Nurses, particularly public health nurses, can educate parents about the importance of infant immunization. Since the school is the

single most important focus of measles transmission, the school nurse is in a most strategic position. The school nurse frequently is the key person in organizing and conducting vaccination programs in the school. She may also be the first to observe a case of measles. Reporting these cases and immunizing susceptibles in other parts of the school may confine the epidemic. With combined efforts of all nurses, the 1967-68 year may add measles to the list of communicable diseases that have been eradicated. Measles vaccine is available without charge. (3 refs.) - R. Froelich.

No address

578 Ogbeide, M. I. Measles in Nigerian children. Journal of Pediatrics, 71 (5):737-741, 1967.

Measles in children in the economically deprived, developing country of Nigeria, has a much higher morbidity and mortality than in the more advanced countries. Measles occur throughout the entire year but reach epidemic proportions just before and following the rainy season. It occurs in much younger children (one-third of cases before 1 year of age), probably through lack of maternal immunity and placental transfer of antibodies. Complications occur in up to 45 percent of cases, and permanent residuals such as lung disease, blindness, MR, disfigurement, and nerve palsies are common. Much of the morbidity and mortality is caused by remedies attempted by relatives, friends, and "medicine men" and based on tradition, religion, ignorance, and misconceptions. The poor nutritional status also lowers resistance to infection and complications. Socioeconomic improvement should do much to alleviate the severity of measles in developing countries. (12 refs.) - W. A. Hammill.

No address

579 Krugman, Saul. Measles vaccines. Journal of the American Medical Association, 202(12):1098, 1967. (Editorial)

The untoward responses of children inoculated with inactivated measles virus vaccine (IMVV) when exposed to natural measles virus or re-inoculated with live, attenuated measles virus vaccine (LMVV) has brought a recommendation that IMVV be withdrawn from immunization schedules and all children previously inoculated with it be re-immunized with LMVV with cautious observation for possible local or systemic reactions. LMVV, since being licensed in 1966, has shown that a single immunization possesses safety and will provide prolonged immunity. (2 refs.) - E. Gaer.

No address

580 Fulginiti, Vincent A., Eller, Jerry J., Downie, Allan W., & Kempe, C. Henry. Altered reactivity to measles virus. Journal of the American Medical Association, 202(12):1075-1080, 1967.

Ten children who had received killed measles virus vaccine (KMVV) developed a serologically proven atypical case of measles characterized by abrupt febrile onset, cough, rash, and peripheral edema and complicated by pneumonia. The illness tended to last 4 to 7 days, and the children were most ill during the prodromal period. This was characterized by a cough, high fever, and pain in different parts of the body, followed 48 to 72 hours later by a rash. The latter usually started on the ankles and distal extremities, progressed centrally, and was typified by varied morphology of the lesions in different stages of development. It was generally accompanied by edema of the extremities. Leukocyte (WBC) counts and differential counts were variable but were most frequently normal. Albuminuria was found in 2 patients, and 9 had some WBC in their urine. While the virus was not isolated from any of the patients, serological testing showed a marked use in the hemagglutination-inhibition antibody titer by all the patients. Serological tests for Rickettsia rickettsii were negative. Due to this unexpected and untoward response in previously inoculated patients, KMVV should no longer be administered. (13 refs.) - E. Gaer.

4200 East Ninth Avenue
Denver, Colorado 80220

581 Ter Meulen, V., Muller, D., & Joppich, G. Fluorescence-microscopy studies of brain tissue from a case of subacute progressive panencephalitis. German-Medical Monthly, 12(9):438-441, 1967.

A new method of preparing tissue for fluorescence microscopy permitted demonstration of a localized pathological process of ganglion cells with accumulation of gammaglobulin when

the brain from a patient with subacute progressive panencephalitis was studied. The brain was from a 4-year-old child who died from panencephalitis 1 hour before evaluation. The modified Carnoy-chloroform fixation method was used with freeze drying, Carbowax embedding, and treatment with conjugated antisera. The neuropathological findings were severe with inflammatory changes in the cerebral cortex, subcortical white matter, basal ganglia, and midbrain gray matter. Plasma cells in the perivascular infiltrate stained strongly with anti-human-gammaglobulin and anti-human-gamma-G-globulin but did not stain with anti-human-beta$_1$C-globulin or anti-herpes simplex serum. Control tests confirmed that gammaglobulin was responsible for the positive reactions. Almost all ganglion cells gave distinct intracellular fluorescence with anti-human globulin, anti-human-gamma-G-globulin and anti-human-beta$_1$ C-globulin. The fluorescence was usually in the cytoplasm extending into the dendrites. Control tests showed that gammaglobulin and human complement were responsible for the reaction. Extremely high measles antibody titers were found in the serum and cerebrospinal fluid. (8 refs.) - R. Froelich.

Universitäts-Kinderklinik
Göttingen
Abteilung für Neuropathologie
Göttingen, Germany

582 Legg, Nigel J. Virus antibodies in subacute sclerosing panencephalitis: A study of 22 patients. British Medical Journal, 3(5561):350-352, 1967.

Measles virus antibodies have been isolated in 22 patients with subacute sclerosing panencephalitis. Hemagglutination-inhibition test for measles and other viral antibodies was compared with 23 control subjects. The complement-fixation test was performed by micro-technique on perspex plates with 4 units of antigen and 2 units of complement used. Hemagglutination antigen was prepared from Edmonston B strain of measles virus. Measles complement-fixing and hemagglutination inhibiting antibodies have been found in the serum of all 22 Ss with subacute sclerosing panencephalitis in significantly higher titer than in controls. Results suggest that the disease is due to a measles-like virus. A related agent such as canine distemper virus and reactivation or reinfection with measles virus cannot be excluded as a causal factor. (24 refs.) - W. Asher.

Institute of Child Health
Great Ormond Street
London W. C. 1, England

583 Olson, Lloyd C., *Buescher, Edward L., Artenstein, Malcolm S., & Parkman, Paul D. Herpesvirus infections of the human central nervous system, New England Journal of Medicine, 277(24):1271-1277, 1967.

Of 2,300 reviewed cases of central nervous system (CNS) infections, 36 of the 350 diagnosed as encephalitis were proven to be caused by Herpesvirus hominis (HH). The Herpes encephalitis (HE) was characterized by rapid onset, high frequency of seizures, cerebrospinal fluid (CSF) changes, high degree of residual neurological effects, and high mortality rate. In 21 cases the virus was isolated. Serological findings indicating possible association but no definite causal relationship to HH were found in 10 cases of aseptic meningitis (AM) and 3 atypical cases of CNS infection. Neither age nor season appeared to be significant in either the AM or HE cases. The AM cases were typified by acute, short-duration, mild illness with signs of meningeal irritation, CSF changes, and without HH involvement of the skin or mucous-membranes. They were not distinguishable from AM caused by other CNS viruses. Fever malaise and symptoms of respiratory infection were common prodromal signs in both HE and AM cases. Headache, seizures, sensorial clouding and disorientation, fever refractory to treatment, motor deficit, and nuchal rigidity were common during the onset or course of HE. Complications during encephalitis included bacterial pneumonia in 11, hyponatremia in 8, duodenal ulceration in 3, and diabetes insipidus in 2. Twenty-five HE Ss expired from 6 to 36 days after onset. Residual deficits have been found in 5 of the 11 survivors. While HH appears to have an affinity for the frontal and temporal lobes, it may not always be recoverable; therefore, other cases of encephalitis in which HE has not been recovered from the CNS may exist but cannot be definitely proven. (36 refs.) - E. Gaer.

*Department of Virus Diseases
Walter Reed Army Institute
of Research
Washington, D. C. 20012

584 Marshall, W. J. S. Herpes simplex encephalitis treated with idoxuridine and external decompression. Lancet, 2(7516): 579-580, 1967.

A 13-year-old boy with herpes simplex encephalitis (proven by fluorescent antibody and viral culture) responded dramatically to treatment with idoxuridine and external decompression. Presented with signs of a space-occupying lesion in the right hemisphere, he rapidly deteriorated to near coma.

Brain biopsy, positive for fluorescent antibodies for herpes simplex, revealed necrotizing encephalitis. Idoxuridine (200 mg/kg) was given intravenously over 3 days. Neurologic improvement began in 36 hours and progressed rapidly. Two months later, slight apraxia of the left hand was the only deficit. Transient leukopenia was the only observed side effect of the therapy. Decompression and specific antiviral chemotherapy offer hope in this previously highly-fatal disease. (9 refs.) - W. A. Hammill.

Institute of Neurologic Sciences
Glasgow, Scotland

585 Encephalitis caused by herpes-simplex virus. New England Journal of Medicine, 277(24):1315-1316, 1967. (Editorial)

Because a definitive diagnosis of herpetic encephalitis requires a brain biopsy and recovery of the virus, it is possible that the severity and prognosis are not as grave as once thought, that mild and non-fatal cases may exist, and that systemic use of 5-iodo-2' deoxyuridine must be re-evaluated. (5 refs.) - E. Gaer.

586 Von Sallmann, L., Myers, R. E., Lerner, E. M., & Stone, S. H. Vasculo-occlusive retinopathy in experimental allergic encephalomyelitis. Archives of Ophthalmology, 78(2):112-120, 1967.

Experimental allergic encephalomyelitis was produced in rhesus monkeys of various ages by injection of guinea pig spinal cord antigen with complete Freund adjuvant. The eye complications were studied clinically in 24 animals and histologically in 21. In addition to perivascular granulomatous lesions in the optic nerve, which have been repeatedly described, signs of vasculo-occlusive retinopathy were observed in about 70 percent of the monkeys. The earliest histological changes in the retina included obstruction of small vessels by fibrin or fibrinoid accompanied by massive hemorrhages. The retinal damage was seen in all age groups. Mild uveitic reactions were noted frequently. The development of vascular pathology in the retina is a new finding in this autoimmune disease. (14 refs.) - (Source: Journal of the American Medical Association, 201(6):244, 1967).

National Institute of
Neurological Diseases and
Blindness
Building 10, Room 10N307
Bethesda, Maryland 20014

587 Kyriakidou, V. Clinical considerations, EEG, and EMG studies in subacute sclerosing leucoencephalitis. Acta Paediatrica Scandinavica, Supplement, 172:128-133, 1967.

Eight children (7males, 1 female) between 5 and 11 years of age with subacute sclerosing leucoencephalitis (SSLE) demonstrated mental deterioration, involuntary rhythmic movements, abnormal EEG and, in 2 patients studied by electromyograph (EMG), a discharge which coincided with the start of the abnormal EEG complex. Death occurred within 1½ to 8 months of the initial admission. Intellectual deterioration occurred in all, manifested by forgetfulness, disturbed behavior, apathy, disturbed school performance, and clumsiness. All demonstrated either epilepsy, head drop attacks, or rhythmic involuntary movements. All had a progressive deteriorating course. Rhythmic complexes occurring at 5 to 20 second intervals were seen on the EEG. Invariably they coincided with the stereotyped involuntary movements. The complexes consisted of high voltage bursts of slow waves preceded by monophasic or diphasic waves. The basic tracing became slower as the disease progressed. The rhythmic complexes were more clearly defined during deep sleep even though the spontaneous jerking did not occur. The EMG action potentials corresponded to the beginning of the EEG discharges. Some activation of the EEG disturbance followed photic stimulation. (15 refs.) - R. Froelich.

Department of Pediatrics
University of Athens
Athens (609), Greece

588 Shaw, Cheng-Mei, Buchan, G. Colin, & Carlson, Coldevin B. Myxovirus as a possible etiologic agent in subacute inclusion-body encephalitis. New England Journal of Medicine, 277(10):511-515, 1967.

Two patients with subacute inclusion-body encephalitis studied at autopsy by electron microscopy showed evidence of myxovirus

299-809 O - 68 - 2

infection, which now raises the total of such reported cases to 7. Both demonstrated filamentous, curly, microtubular helical structures in the intranuclear inclusion bodies. Case 1 was a 14-year-old boy who developed a behavioral change, seizures and dementia, and weakness progressing to coma and death after exploratory surgery. Case 2 was a 7-year-old boy who presented with enuresis, lethargy, hallucinations, dementia, weakness, jerking movements, seizures, and death. He became ill at about the same time his pet dog became ill. No virus was identified in either case. One group of large myxoviruses considered as the infecting agent has been the measles-distemper-rinderpest group. The possibility that case 2 had distemper from his pet dog was suggested but could not be proven. Another possible group is the mumps-Newcastle-disease-Sendai-parainfluenza group. Immunologic studies did not help to clarify the problem. Other investigators have found antimeasles antibody in the serum, cerebrospinal fluid, and inclusion bodies of some of their patients. (23 refs.) - R. Froelich.

Department of Pathology
University of Washington
School of Medicine
Seattle, Washington 98105

589 Levy, Harvey L., & Ingall, David. Meningitis in neonates due to Proteus mirabilis. American Journal of Diseases of Children, 114(3):320-324, 1967.

The 2 neonates with fatal Proteus mirabilis meningitis described were from a nursery that had had 3 other severe P mirabilis infections over a 10-month period. Patient 1 was normal until 5 days of age when he became markedly lethargic, unresponsive, and icteric. He died in the emergency room before treatment could be started. Cerebrospinal fluid (CSF) cultures grew P mirabilis. Patient 2 became febrile, refused to eat, and had a convulsion on the third day of life. The CSF showed 1,000 polymorphonuclear leukocytes per cc, a glucose of 20 mg/100 cc, and gram-negative bacilli. A CSF culture grew P mirabilis. The infant was treated vigorously with antibiotics, phenobarbital for convulsions, and hydrocortisone. The CSF cleared and cultures were negative. He improved but suddenly died on the ninth day. Autopsy showed moderate hydrocephalus, purulent meningitis, and ventriculitis. The nursery was examined for sources of P mirabilis, but none could be found. Six previous cases of P mirabilis meningitis in neonates have been reported. Since it has been shown that ventriculitis can exist with normal CSF from a spinal tap, intraventricular antibiotic instillation may be necessary. (14 refs.) - R. Froelich.

Massachusetts General Hospital
Boston, Massachusetts 02114

590 Cussen, L.J., & Ryan, G. B. Hemorrhagic cerebral necrosis in neonatal infants with enterobacterial meningitis. Journal of Pediatrics, 71(6):771-776, 1967.

Of 63 newborn infants who died with enterobacterial meningitis, 22 were found to have hemorrhagic cerebral necrosis; this indicates that it is an important cause of death in neonatal meningitis. Between 1951 and 1966 81 infants were diagnosed as having enterobacterial meningitis at the Royal Children's Hospital in Melbourne. Of the 14 infants with meningitis from a Proteus species, 12 had hemorrhagic cerebral necrosis. Clinical features included a preponderance of males (3:2), frequent prematurity (average gestation of 37 weeks), and an average age-of-onset of 7 days for the group with necrosis and 9 days for the group without necrosis. Presenting signs included apnea, cyanosis, convulsions, jaundice, fever, irritability, drowsiness, vomiting, neck stiffness, and cranial nerve palsies. Two of the 6 cases had low platelet counts. A gram negative bacillus was found in the cerebrospinal fluid of 13 of 22 patients during life. Other sources of positive culture were brain (20), blood (8), umbilicus (5), lung (5), middle ear (3), and peritoneal cavity (3). Antibiotic treatment was given to 10 infants. The average length of illness before death was 3 days. The hemorrhagic necrosis was most marked in the periventricular white matter. One case also had Turner's syndrome with coarctation of the aorta. The prospects for survival of an infant with enterobacterial meningitis and significant hemorrhagic necrosis is remote. (10 refs.) - R. Froelich.

Department of Pathology
University of Melbourne
Grattan Street
Parkville, N.2., Victoria
Australia

591 Ströder, J., & Wecker, E. Probleme in der Verhütung von Viruskrankheiten. (Problems in the prevention of viral diseases). Archiv fur Kinderheilkunde, 176(1):26-32, 1967.

Prophylactic measures against smallpox, poliomyelitis, and measles viruses are now possible by inoculation and vaccination; the

prospect is good for the development of a vaccine for German measles. Since the use of viral vaccines must be based on improved application of viral diagnostic tools, the clinician and the virologist must work together so that problems can be resolved in accordance with their importance and possible significance. (No refs.) - A. Clevenger.

87 Würzburg
Jos.-Schneider-Str. 2
Univ.-Kinderklinik
Würzburg, Germany

592 Loo, P., Saba, S., Loo, H., & Parry, J. La toxoplasmose en milieu psychiatrique. (Toxoplasmosis in the psychiatric milieu.) Annales Medico Psychologiques, 2(3): 281-310, 1966.

Toxoplasmosis presents with a variety of symptoms and involvement of many age groups with a particular affinity for the reticuloendothelial system, muscle, and nervous tissue. The symptoms described by multiple authors vary with stillbirth, hydrocephalus, prematurity, congenital malformations, cerebral calcifications, chorioretinitis, icterus, splenomegaly, and encephalomyelitis being reported, depending upon when the parasites were acquired. Ninety-five infants and adolescents presenting with psychomotor retardation and epileptic crises, with or without neurological signs, were shown to have 36 positive serological reactions to toxoplasmosis. Descriptions of each case history and physical findings of these and 26 adult cases demonstrate multiple symptoms with nervous system involvement as a common factor to the majority of cases. Because of this nervous system involvement, the disease justifies the attention of psychiatry. (18 refs.) - W. Asher.

Charite-sur-Loire
Nievre, France

593 Fast fluorescence test spots toxoplasmosis. Medical World News, 8(30): 52, 1967.

A 2-week-old boy presented slight microcephaly, enlarged liver and spleen, chorioretinitis in 1 eye, and a fine macular rash. The symptoms suggested cytomegaloviral infection, congenital rubella, or acute congenital toxoplasmosis. Using a fluorescein-tagged antiserum, the diagnosis of toxoplasmosis was confirmed in 2 hours instead of 2 days with the former technique. The new test is also specific for toxoplasmosis, while the former did not rule out an old maternal infection. (No refs.) - J. Snodgrass

594 Alford, Charles A., Schaefer, Joanna, Blankenship, Willard, J., Straumfjord, Jon V., & Cassady, George. A correlative immunologic, microbiologic and clinical approach to the diagnosis of acute and chronic infections in newborn infants. New England Journal of Medicine, 277(9):437-449, 1967.

Sera from umbilical cords and from 222 neonates examined for gamma M and gamma A globulin by immunoelectrophoretic and quantitative methods demonstrated that high globulin levels can be used as an indication of high risk for infections. Serial clinical and microbiologic examinations were carried out for 1½ years after delivery. Most infants studied were believed to be at high risk for infection. Gamma M and sometimes gamma A globulins usually increased 1 week after the onset of symptoms of a variety of postnatal infections. The amounts of globulin present were related to the pathogens rather than to the degree of clinical damage. Such pathogens included in utero infections of rubella virus, cytomegalovirus, Treponema pallidum, and some bacteria. No relationship was found between globulin levels and age or birth weight. Levels were related to chronicity of intrauterine fetal infection and response to treatment. Both the immunoelectrophoretic and quantitative methods were established as routine screening procedure. Screening of umbilical cord blood could be of value in detecting newborns with clinically inapparent, congenitally acquired infections. (24 refs.) - R. Froelich.

University of Alabama Medical Center
1919 - 7th Avenue
Birmingham, Alabama 35233

595 Moncrieff, A. A., Clayton, B. E., & Roberts, G. E. Lead absorption in children. British Medical Journal, 3(5558): 174, 1967. (Letter)

If there is lead in the environment, MR children with pica are liable to lead poisoning, which could further impair their functioning. Detection of plumbism in childhood

before the appearance of clinical signs could prevent interference with intermediary metabolism. At present there is no accurate biochemical test. (No refs.) - J. Snodgrass.

Hospital for Sick Children
London W. C. 1, England

596 Oliver, B. E. Aspects of lead absorption in hospitalised psychotic children. Journal of Mental Deficiency Research, 11(2):132-142, 1967.

A 2-year investigation of lead metabolism in 43 hospitalized psychotic children suggests that a decreased hemoglobin level is associated with a slight increase in blood lead, while sunny and/or warm and/or dry weather is related to a markedly increased blood lead level. Penicillamine is effective in decreasing blood lead in most cases. Blood lead and hematological parameters of all the psychotic children were examined whether lead poisoning was suspected or not. Since the number of children with increased lead levels was high, an attempt was made to decrease the environmental lead. The overall blood lead levels did decrease, but the cool, less sunny summer that year (1964) may have been partially responsible for this. Of the 18 cases selected for drug treatment, 10 had high blood lead level (> 60 mμ/100 ml) and 8 had intermediate (37-60 mμ/100 ml). Treatment with penicillamine (beta-beta dimethylcystein, 150-300 mg daily) was effective in decreasing the lead; however, 7 cases required repeated courses of treatment. Basophilic stippling was rare, and there were no toxic renal effects from the penicillamine or lead. X-rays showed decreased lead deposition everywhere but in the abdomen. No lead lines in the gums or paresis were observed. (17 refs.) - R. Froelich.

Chelmsley Hospital
Marston Green
Birmingham, England

597 Comstock, George W., & Lundin, Frank E., Jr. Parental smoking and perinatal mortality. American Journal of Obstetrics and Gynecology, 98(5):708-718, 1967.

Compared to infants of non-smoking mothers, infants born of smoking mothers have decreased birth weight and increased perinatal mortality. All perinatal deaths and a sample of live births from Washington County, Maryland, over a 10-year period were matched against the findings from a special census conducted in the same area in 1963. The special census consisted of a 4-page questionnaire sent to 24,000 addresses and delivered to an additional 12,000 people. The sample of live births consisted of every thirty-third live birth. Of the 448 live births studied, 376 were classified as having smoking or non-smoking mothers. Parameters studied included sex, birth order, birth weight, residence, ages of parents, education of parents, marital history, race, church attendance, sanitary conditions, and smoking status of the mothers during pregnancy. The birth weight of infants of non-smoking mothers was about 200 grams more than that of infants of smoking mothers. The birth weight was even more depressed for heavier smoking mothers. Among smoking mothers there was no increase in stillbirths, but infant mortality increased during the neonatal and childhood period. A causal relationship between perinatal mortality and smoking was found only when the fathers were poorly educated; this indicates a significant socioeconomic and environmental factor. (17 refs.) - R. Froelich.

1300 Pennsylvania Avenue
Hagerstown, Maryland 21740

598 Pritchard, Jack A., & Stone, Stuart R. Clinical and laboratory observations on eclampsia. American Journal of Obstetrics and Gynecology, 99(6):754-762; discussion, 762-765, 1967.

Of 69 mothers with eclampsia treated almost exclusively with magnesium sulfate (MS), 100 percent survived-as did 79 percent of their fetuses-indicating that the drug is remarkably safe and effective in aborting and preventing the disease. MS was given introvenously (IV) and intramuscularly (IM) when a patient developed seizures and was supplemented by barbiturates when necessary to control convulsions. If the diastolic blood pressure was elevated, hydralazine was given. Delivery was vaginal in 48 cases, of which 2 were induced and 13 were delivered by cesarean section. IV fluids and other seizure treatment were given the mothers. Neonatal mortality was nonexistent in those babies over 2,000 grams, and of those over 1,000 grams 89 percent survived. In spite of the rather large doses of MS, toxic complications developed in only 1 patient, who also had chronic renal disease. Other than cessation

of seizure activity no other depressant effect on the central nervous system was evident, and no significant inhibition of myometrical contraction was evident. All the women studied showed severe hypovolemia in contrast to normal pregnancies, and blood loss averaged over 900 cc. Hemoconcentration was evident in all cases, and the increase noted in hematocrit reflected circulating red-cell volume variations and not blood volume. The decrease in hematocrit following delivery reflected blood loss and not expansion of blood volume. Furthermore, the improvement noted with the fall in hematocrit was most likely related to delivery and not other factors. Other laboratory tests were not of value in treating eclampsia. (15 refs.) - E. Gaer.

Department of Obstetrics and
Gynecology
University of Texas South-
western Medical School
Dallas, Texas

599 Horger, E. O., III, Kellett, W. W., III, & Williamson, H. O. Diabetes in pregnancy: A review of 143 cases. Obstetrics and Gynecology, 30(1):46-53, 1967.

During the 10-year period 1955-1965, 88 patients with diabetes mellitus were followed through 143 pregnancies. Of the 137 pregnancies carried to viability, 19 (13.9 percent) were stillborn and 5 (3.6 percent) died in the neonatal period. The 88 women had 520 previous pregnancies (mean gravidity 5.9) which had all terminated before diagnosis of diabetes. Fetal loss was near 21 percent. Complications of pregnancy included: (1) toxemia (31.4 percent), (2) ketoacidosis (2.2 percent), (3) excessive weight gain (22.6 percent), (4) urinary-tract infection (7.3 percent), (5) excessive fetal size (26.8 percent), (6) prematurity (14.2 percent), (7) fetal anomalies (2.2 percent). Diabetes complicated 1 of 111 pregnancies with increased perinatal mortality, increased pregnancy complications, and increased infant size. Perinatal mortality was the same in the prediabetic state and in overt diabetes. Insulin requirements increased during pregnancy. (29 refs.) - J. Snodgrass.

Medical College of South Carolina
Charleston, South Carolina

600 Jordan, William R. The pregnant diabetic. Southern Medical Journal, 60(11):1213-1217, 1967.

A review of 105 pregnant diabetics showed that although the disease posed a problem, careful attention paid to medical and obstetrical complications improved the fetal survival rate. The mothers were treated so as to insure control of the disease and delivery of a healthy infant. Problems encountered and treated included: need for increasing insulin dosage, lower renal threshold, developing acidosis, tendency towards toxemia, possible catastrophic effect of relatively minor intercurrent disease, and precipitous fall of insulin requirements at the termination of pregnancy. Fetal survival rate increased from 0, for delivery at less than 34 weeks, to a peak of 95 percent at 37 weeks. Mothers from 26 to 30 years of age and those whose disease was mild and easily controlled had the highest survival rate. If gestation was at 34 weeks or more, a single episode of acidosis did not appear to endanger the fetus. Those with a weight gain of 16 lbs or less had the greatest fetal survival rate. Insulin dosage rose 15 units or more in 58 percent of the mothers, remained constant in 38 percent, and declined in only 2 cases. If the dosages were raised as indicated, there was no effect on fetal survival. Furthermore, treatment with stilbesterol did not significantly affect the fetal survival rate. Finally, a number of cases showed a marked drop in insulin requirements on the day of delivery; those mothers who were not delivered promptly following the insulin drop did not deliver viable fetuses. This would indicate that ceasarean section or (if the cervix is ripe) vaginal delivery should be carried out promptly when the insulin requirement drops after the thirty-third week. (6 refs.) - E. Gaer.

1631 Monument Avenue
Richmond, Virginia 23200

601 Lucey, J. F., Valaes, T., & Doxiadis, S. A. Serum albumin reserve PSP dye binding capacity in infants with kernicterus. Pediatrics, 39(6):876-883, 1967.

Failure to register a significant difference between the serum albumin phenosulfonphthalein (PSP) reserve dye binding capacity of 11 neurologically damaged infants with kernicterus and that of 82 other newborn infants with increased serum bilirubin proves that this test is ineffective in assaying the risk of neurological damage from a particular serum level of bilirubin. All 93 infants used in the study had serum bilirubin concentrations between 20 and 52 mg/100 ml. PSP binding capacity decreased as serum bilirubin increased; when a level of 20 mg/100 ml bilirubin was reached, the PSP binding capacity reached a plateau. All

infants with kernicterus had definite clinical signs. There was no difference between the PSP reserve dye binding capacity of the neurologically damaged and that of the clinically normal infants with the same degree of jaundice. Serum bilirubin measurements are only of value in estimating the risk of kernicterus. A more specific test for predicting risk would be useful in selecting patients for exchange transfusion. Of 5 infants with kernicterus who were not given exchange transfusion, 4 eventually died. (20 refs.) - R. Froelich.

Department of Pediatrics
University of Vermont
College of Medicine
Burlington, Vermont 05401

602 Furuhjelm, U., Nevanlinna, H. R., & Österlund, K. Early neonatal jaundice and hyperbilirubinaemia and their relation to ABO incompatibility. Acta Paediatrica Scandinavica, 56(5):477-484, 1967.

A higher than expected incidence of ABO incompatibility among 226 infants with neonatal jaundice and hyperbilirubinemia demonstrates that ABO incompatibility is an important etiological factor in neonatal hyperbilirubinemia. A series of 6,549 infants from the University of Helsinki were studied. Excluded from the study were stillbirths, infants weighing less than 2,500 gm, and Rh sensitized infants. One hundred and sixty-three were jaundiced before 24 hours of age (2.49 percent), and 63 developed severe jaundice later. There were no significant clinical differences for factors of birthweight, viral or bacterial infection, infant feeding, or treatment with vitamin K. The incidence of ABO incompatible infants was 83; only 44 were expected. The "excess" cases belonged to the blood-group combination: mother O, infant A or B (58 infants). The mean hemoglobin for the total series was 18.3 gm/100 ml, and reticulocyte counts for the incompatible and compatible infants were 4.1 percent and 3.0 percent respectively. The increase of bilirubin was greater among the incompatible infants than among the ABO compatible group. Very high values of serum bilirubin were found only in incompatible infants and were not significantly related to parity, labor, gestational age, birth weight, or placental weight. Early jaundice was found in 75 percent of those infants requiring exchange transfusions. It appears that those infants with a good capacity for excretion of bilirubin seldom develop jaundice. (13 refs.) - R. Froelich.

Department of Obstetrics and Gynaecology
University of Helsinki
Helsinki, Finland

603 Freda, Vincent J., Gorman, John G., & Pollack, William. Supression of the primary Rh immune response with passive Rh IgG immunoglobulin. New England Journal of Medicine, 277(19):1022-1023, 1967.

Intra-muscular injection of anti-Rh immunoglobulin preparation into non-immunized Rh-negative mothers within 72 hours of delivery of an Rh-positive baby suppressed the Rh immune response in the mothers and produced no ill effects. Out of 582 mothers who received the injections, none are actively immunized, whereas 65 of 537 control mothers are actively immunized to Rh. In the protected group, there have been no Rh affected infants in 72 deliveries. In the control group, 64 of the non-immunized mothers have delivered Rh-positive babies and 13 of the 65 mothers actively immunized have given birth to Rh-affected infants. It is hoped that this preparation will soon be generally available for the prevention of Rh hemolytic disease in the newborn. (28 refs.) - W. Asher.

Columbia University
630 West 168th Street
New York, New York 10032

604 A landmark in medical progress: Prevention of Rh sensitization. New England Journal of Medicine, 277(19):1036-1037, 1967. (Editorial)

Prevention of Rh sensitization by injection of an anti-Rh immunoglobulin has been developed simultaneously by 2 separate groups of investigators. The injection suppresses the Rh immune response to Rh-positive red cells. As a result of these developments, erythroblastosis fetalis and its treatment will eventually be of historical interest only. (6 refs.) - W. Asher.

605 Gilliver, B. E. Prevention of Rh haemolytic disease. British Medical Journal, 3(5556):47, 1967. (Letter)

Case material is presented on the dose of anti-D gammaglobulin necessary to prevent Rhesus (D) antibodies when there is massive transplacental hemorrhage. It was demonstrated that 5 ml of anti-D gammaglobulin is sufficient against a feto-maternal transfusion equivalent to more than half the infant's blood volume. (6 refs.) - J. Snodgrass

County Laboratory
Dorchester, Dorset
England

606 Inoculating newborns makes them blood brothers. Medical World News, 8(46):43, 1967.

When neonates or fetuses are exposed to antigen, immunologic tolerance is produced. Injecting purified human A antigen into 16 neonates with type O blood resulted in depressed anti-A titers for variable time spans; duration of tolerance depended on the length of time the infants received the antigen. In another preliminary study the injection of A antigen into the amniotic fluid of 3 fetuses resulted in their reaching 6 months of age without producing any A antibody. The immediate therapeutic application of these findings is to induce tolerance in children whose mothers have genetically-determined hemolytic disease. Future possibilities for application include making everyone a universal donor and recipient and facilitating free exchange of organs without rejection. (No refs.) - R. Froelich.

607 W. H. O. acts to ensure Rh vaccine supply. Medical World News, 8(22):50-51, 54, 1967.

High-titer anti-Rh immunoglobulin G, which is extracted by plasmapheresis from the blood of hyperimmune Rh-negative persons, is a 100 per percent effective vaccine against erythroblastosis. These individuals include Rh-negative women who have already had erythroblastotic babies and Rh-negative men or women who have built up the anti-Rh antibody after they were mistakenly transfused with Rh-positive blood. A few volunteer human vaccine factories could provide enough for a large population, but the different nations vary in laws restricting injection of volunteers with antigen and payment of donors. The U. S. has neither restriction, and other countries are working on the necessary legislative changes. (No refs.) - J. Snodgrass.

608 Plasma gives Rh mothers second chance. Medical World News, 8(46):44, 1967.

A series of 500 patients injected with unfractionated plasma from Rh-negative women included 74 mothers who delivered 70 non-jaundiced infants; this indicates that the procedure may be valuable in the treatment of Rh sensitization. The material used for inoculation came from 6 Rh-negative women who had previously delivered hydropic or stillborn Rh-positive fetuses and gave no history of hepatitis. Patients were injected with 5-10 cc of plasma intramuscularly, usually within 2 days after an unsensitized Rh-negative mother delivered an Rh-positive infant. None became sensitized to Rh-positive blood at the time of their subsequent pregnancies. In a control group of 88 women, 16 became sensitized. Complications have not been encountered. (No refs.) - R. Froelich.

609 Renkonen, K. O. & Timonen, S. Factors influencing the immunization of Rh-negative mothers. Journal of Medical Genetics, 4(3):166-168, 1967.

A study of the healthy siblings preceding erythroblastotic children showed an increased male-female ratio of 1:74 ($p < 0.001$) and an increased incidence of twin births of 2.96 percent ($p < 0.01$) among the first-born. The study covered the children born at a hospital in Helsinki, Finland, between 1962-1966. While the expected M/F ratio in Finland was 1.062, the actual count was 134 males and 77 females. There were 6 pairs of twins among the 217 sensitizing births. These findings support previous reports of increased incidence of males and twins among sensitizing children. Although the reason for this association is not known, it may be caused by a strong immunological response to

doubled antigen (in the case of twins) and to Rh-positive and male antigens (in the case of male infants). Increased uterine and placental trauma may occur with twins, increasing the likelihood of sensitization. The high incidence of twins and boys only occurred when the first born was followed by an affected child. When the birth order was higher, the sex ratio was normal. The mean birthweight of sensitizing girls was higher than that of all first born girls in the same hospital. (16 refs.) - R. Froelich.

Department of Serology
and Bacteriology
Univeristy of Helsinki
Helsinki, Finland

610 Fairweather, D.V.I., Tacchi, D., Coxon, A., Hughes, M. I., Murray, S., & Walker, W. Intrauterine transfusion in Rh-isoimmunization, British Medical Journal, 4(5573):189-194, 1967.

A total of 77 intrauterine transfusions (IT) were performed over a 2-year period on 35 selected fetuses of which 16 survived-indicating that in spite of some risk the procedure has value in averting Rh-isoimmunization. Since bilirubin levels (BL) generally fall during pregnancy, a continually elevated or rising value found on serial amniocentesis (AMC) was judged to be the best criterion for IT. IT was performed on 7 of 16 patients randomly selected in 1965 and 28 patients in 1966. Of the first series, 3 were born alive and 2 survived, and of the second series 14 of 16 liveborn survived. The increased survival rate was attributed to improved technique as well as more care in selection of patients. Accidents occurring during IT did not appear to cause any intrauterine deaths or severe untoward effects on the fetus. Cord hemoglobin values on the live born ranged from 18 to 140 percent, with the percentage of donor blood ranging from 0 to 100. Direct Coomb's tests, therefore, ranged from absent to strongly positive. Elevated cord BL necessitated exchange transfusion in 17, with 7 requiring more than 1. Respiratory distress in 5 cases and anemia requiring simple transfusion in 10 cases were postnatal complications. The patients were delivered prematurely at 35 weeks gestation with 7 needing cesarean section due to failure of induction or other reasons. Birth weight ranged from 1700 to 3,315 g with a mean of 2,380 g. Of the 16 surviving infants, 14 were currently normal and 1 had a patent ductus arteriosus. The remaining infant, who was severely anemic at birth and suffered respiratory distress, shows signs of mental retardation with possible cerebral atrophy. Except for 2 cases of strabismus no other abnormalities have been found. Pregnancy should be carried to 35 weeks to reduce the incidence of neonatal mortality caused by prematurity. Factors contributing to the procedure's success were found to be: avoidance of injecting lymphocytes, the amount of blood transfused, the stage of pregnancy when AMC and IT were performed, and careful selection of patients. (19 refs.) - E. Gaer.

University College Hospital
London, W.C.1, England

611 Bishop, Edward H., Weber, Lennard L., & Israel, S. Leon. Intrauterine transfusion. American Journal of Obstetrics and Gynecology, 99(5):615-623; discussion, 623-626, 1967.

Evaluation of 91 fetal transfusions carried out on 44 Rh-sensitized gravidas over a 2½-year period indicated that intrauterine transfusion is not warranted except in cases with a disastrous obstetric history and repeatedly threatening levels of optical density in amniotic fluid. The criteria for selection of candidates for fetal transfusion usually included both of the above. The obstetric history and optical density of the amniotic fluid were combined into a single numerical scoring system. The procedure described did not vary significantly from previously described techniques. Fourteen fetuses and 8 of the 30 live-born infants died. The 22 surviving the neonatal period represented a 50 percent salvage rate. The expected perinatal mortality of 90 percent would seem to make the procedure worthwhile. However, the state of gestation, the presence of hydrops, and other variables must also be considered. No infant with an optical density over 0.600 survived. The value of fetal transfusions seems certain, but the surrounding circumstances must be delineated. The maternal risk involved is not warranted when the hydropic fetus is already doomed or when the fetus is mildly affected and can be safely delivered early. Although no one has yet been able to do a controlled study of intrauterine transfusion, the occasional survival of an infant after the mother's refusal of transfusion is interesting. (20 refs.) - R. Froelich.

811 Spruce Street
Philadelphia, Pennsylvania 19107

612 Risky grandmothers in Rh disease. British Medical Journal, 3(5561):322-323, 1967.

The role of Rh-positive mothers of Rh-negative daughters giving birth to erythroblastotic babies has been studied in 157 families. The grandmothers, mothers, and the children all had their ABO and Rh groups determined. Maternal red blood cells can pass the placenta into the circulation of the fetus in 1 out of 6 pregnancies or more often. Theoretically, this passage of cells may induce immunologic tolerance in the fetus or may increase the liability of the child to respond to Rh stimulation in later life. Statistically significant excess of Rh-positive grandmothers in the families with an erythroblastotic child implies that passage of Rh-positive cells to an Rh negative female fetus exists. The likelihood of bearing an affected child is then increased. Calculations show that the effect of having an Rh-positive grandmother is comparable to 1 Rh-positive pregnancy. (2 refs.) - W. Asher.

613 Steinke, J., Gries, F. A., & Driscoll, S. G. In vitro studies of insulin inactivation with reference to erythroblastosis fetalis. Blood, 30(3):359-363, 1967.

Hemolyzed serum from 2 infants with erythroblastosis fetalis (EF) and normal subjects (NS) showed decreased insulin-like activity (ILA) caused by reversible binding and irreversible destruction of the hormone and would explain the pancreatic islet cell hyperplasia seen in EF as a compensatory mechanism to overcome this. Sera (with and without added insulin) from 2 children with EF revealed lower ILA when the disease was more severe and when the serum was assayed immediately rather than after being stored for 3-7 weeks at -20° C. Endogenous ILA in hemolyzed serum (HS) from normals was lower than clear serum (CS). Addition of exogenous insulin raised the ILA of the CS but not the HS, while addition of crystalline hemoglobin (HBG) lowered the effect of ILA added crystalline insulin in nonhemolysed serum. Incubation of HBG-insulin mixture with subsequent extraction of insulin from the inactive mixture yielded 60 percent recovery, pointing to reversible binding of the insulin. Crystalline insulin processed in the same manner revealed a 20 percent higher recovery; the discrepancy was attributed to destruction of the insulin by the HBG. The insulin was postulated to be destroyed by sulfhydryl groups (SH) known to be present in HBG-probably in the form of glutathione. When a mixture of HBG deproteinized of SH and crystalline insulin was assayed, recovery of the latter was almost total. Furthermore, SH levels were found to be lower in stored HBG than in fresh HBG and virtually absent in HBG dialized against water. Therefore, the in vitro inactivation of insulin during hemolysis is attributed both to reversible binding and irreversible destruction. The similarity of this process in vivo in EF would result in lower ILA than needed and a compensatory pancreatic islet cell, hyperplasia would result in order to raise the insulin level. (7 refs.) - E. Gaer.

170 Pilgrim Road
Boston, Massachusetts 02215

614 Lucey, Jerold F., Randall, John L., & Murray, John J. Is hypoglycemia an important complication in erythroblastosis fetalis? American Journal of Diseases of Children, 114(1):88-90, 1967.

Three infants with erythroblastosis fetalis due to Rhesus factor incompatibility and neonatal hypoglycemia are described in order to call attention to the association that exists between these 2 disorders. Case 1, the product of a normal-appearing pregnancy and delivery, developed a weak cry, poor muscle tone, pallor, and cyanosis after birth. At 2 hours of age, blood glucose was below 30 mg/100 cc, and repeated determinations were markedly hypoglycemic. She was treated with an exchange transfusion, intravenous glucose, and intramuscular adrenocorticotrophic hormone and responded well. Case 2 was delivered prematurely (gestation of 35 weeks) with a birth weight of 1,616 gm. Anti-D and Anti-C titers had risen during pregnancy. The infant was hydropic, acidotic, and erythroblastic and was treated by exchange transfusion. Hypoglycemia was noted at 22 hours of age. Death occurred at 36 hours of age. Autopsy showed pancreatic islet cell hyperplasia. Case 3 was depressed at birth with an Apgar rating of 1. Because of erythroblastosis, she was given an exchange transfusion during which severe hypoglycemia occurred. She died at 8 hours of age, 1 hour after treatment with intravenous glucose. Because the diseases exhibit similar symptoms, the simultaneous occurrence of erythroblastosis and hypoglycemia may be more common than suspected. Hypoglycemia may be a cause of some of the morbidity from erythroblastosis. (7 refs.) - R. Froelich.

Department of Pediatrics
University of Vermont College
of Medicine
Burlington, Vermont 05401

615 Schneider, J. Morton, Pirofsky, Bernard, Hoskins, Blaine L., & Benson, Ralph C. Prediction of intrauterine fetal involvement in erythroblastosis fetalis. Obstetrics and Gynecology, 30(3):432-437, 1967.

A survey of 2,553 deliveries for specific isohemagglutinins demonstrated the superiority of antibody screening over the outmoded Rh typing and also showed that spectrophotometric analysis of the amniotic fluid is a test superior to serial maternal antibody determinations for follow-up of the sensitized patient. A total of 3,870 antibody screening tests were done over an 18-month period. Specific hemagglutinins included anti-Le^a (27), anti-Rh_o(D) (25), anti-K (6), anti-rh'(C)+Rh_o(D) (5), anti-P (4), anti-rh"(E) (3), anti-Le^b (3), anti-Jk^a (2), anti-hr'(c)+rh"(E) (1), anti-H (1), and anti-O (2). One hundred and four amniocenteses were done in 58 patients. Isohemagglutinins associated with hemolytic disease included anti-D (10), anti-D/C (4), and anti-c/E (1). Both amniocentesis and antibody titer accurately predicted outcome for the non-affected or mildly affected infant, but amniotic fluid spectral absorption curves were more effective in assessing moderate and severe involvement and were more reliable in predicting the optimum time for delivery. Advantages for amniotic fluid analysis justify its use. All pregnant women should have antibody screening tests with immunohematologic studies for the sensitized patient. (18 refs.) - R. Froelich.

Department of Gynecology and Obstetrics
University of Wisconsin Medical School
Madison, Wisconsin 53706

616 Pugsley, Louis Q., Sites, James G., Simopoulos, Artemis P., & Fidis, Nicholas E. Current concepts in the management of hemolytic disease of the newborn. Southern Medical Journal, 60(11):1218-1222, 1967.

Amniotic fluid (AF) collected by amniocentesis (AMC) from 30 Rh-negative (Rh-N) pregnant women who showed positive antibody titers was analyzed spectrophotometrically to determine their level of bilirubin-like pigment and establish a standard for management of hemolytic disease of the newborn. A total of 49 AF samples was measured and their optical densities (OD) recorded. If the OD fell within a normal range in the pressure of a positive antibody titer, it indicated either an Rh-N infant or an unaffected or mildly affected Rh-positive (Rh-P) infant, and early induction of labor with its hazards was contraindicated. The Ss were divided into 3 zones according to the OD measured. The zones followed a pattern devised in an earlier report. Patients falling into the 2 lowest zones were delivered either at term or early, with exchange transfusions (ET) performed as indicated. Zone 3 had 10 patients; 3 underwent intrauterine transfusion with only 1 surviving. Of the other 7, 5 were stillborn, and 2 were delivered early and underwent ET. Although delivery at 35 weeks and ET were more successful, intra-uterine transfusion is indicated and successful when previously established criteria are met. (10 refs.) - E. Gaer.

901 23rd Street, N.W.
Washington, D. C. 20037

617 Bourgeois, M., & Trejaut, N. Groupes sanguins et maladies mentales. (Blood types and mental illness). Annales Medico Psychologiques, 2(3):447-450, 1967.

Seven hundred and eighteen mentally ill patients were studied to investigate the correlations between hemotypes ABO and several diseases, including manic depressives, schizophrenics, paranoids, senile patients, MR, and epileptic cases. The results were negative but not definitive. More samples of each disease are needed before the results can be considered definitive. (1 ref.) - C. A. Pepper.

Centre Jean-Abadie
Bordeaux, France

Trauma or physical agent

618 Huessy, H. R. Study of the prevalence and therapy of the choreatiform syndrome or hyperkinesis in rural Vermont. Acta Paedopsychiatrica, 34(4/5):130-134, 1967.

Of 84 consecutive cases of the choreatiform syndrome (hyperkinesis) followed from 6 to 36 months, 58 were successfully treated by various medications. The Ss were school children from rural Vermont. Of the 300 children surveyed, 10 percent seemed to meet the criteria of hyperkinesis. Eighty percent of the teachers questioned complained of hyperkinetic children in their classes. These children frequently did very poorly in group relationships. Of the 26 children not known to have improved, 4 were lost to

follow-up, 2 had actually never taken the medication, and 17 had not returned for further treatment after the initial failure of medicine. Of the successfully treated, 46 were boys and 12 were girls. Thirty responded to amphetamine, 12 to Ritalin, 5 to Dilantin, 5 to phenothiazines, and 3 to other drugs. A few cases temporarily improved with amphetamines but lost the improvement within 3 days to 3 weeks. The syndrome was more common in boys (4:1) and tended to involve physical hyperactivity and active disruption, while in girls it tended to involve day dreaming. Medication was needed for varying lengths of time. The incidence of organic brain-damage was much higher in this group than in the general population. Although study does not prove the efficacy of drug therapy, it does demonstrate the value of further research in this area. (16 refs.) - R. Froelich.

College of Medicine
University of Vermont
Burlington, Vermont 05401

619 Fenichel, Gerald M. Abnormalities of skeletal muscle maturation in brain damaged children: A histochemical study. Developmental Medicine and Child Neurology, 9 (4):419-426, 1967.

Five of 8 children with cerebral hypotonia were found to have abnormalities of maturation on muscle biopsy. There were 4 males and 4 females between the ages of 14 days and 6 years. Developmental or mental retardation was present in 7 children. It is known that muscle histology from biopsies of cerebral hypotonic children is normal. This study was intended to evaluate the state of maturation of muscle fibers. Three maturational patterns could be differentiated: (1) early fetal pattern - 3 cases, (2) newborn pattern - 2 cases, and (3) normal maturation - 3 cases. The 3 patients with an early fetal pattern included the 14-day-old infant. The 3 did not have similar case histories. Both cases that had a newborn pattern had complicated deliveries. The 3 Ss with normally mature muscle fibers were the oldest in the series and ranged from 17 months to 6 years old. One was frankly MR. Although the pathogenesis of these findings is unknown, the test may be useful in defining the relationship between muscle integrity and cerebral factors. Three explanations of these findings are a trophic influence from damaged brain, regression of muscle maturation and secondary changes to immobilization. (19 refs.) - R. Froelich.

The Children's Hospital of
the District of Columbia
Washington, D. C.

620 Spurious recovery masks creeping nerve damage. Medical World News, 8(47):44, 1967.

Monkeys asphyxiated at birth and permitted to develop without physical therapy showed marked improvement in their initial disabilities but at autopsy showed extensive cerebral damage indicating that progressive brain deterioration may take place during a period of apparent improvement. Since the human brain most likely reacts in a similar way, one should not be complacent in assuming that a brain damaged child has no further cerebral deterioration in spite of his apparent clinical improvement. (No refs.) - E. Gaer.

621 Sršeň, Š. Intraventricular haemorrhage in the newborn and 'low birth-weight'. Developmental Medicine and Child Neurology, 9(4):474-480, 1967.

Of 412 newborn infants dying before their tenth day of life, 136 had an intracranial hemorrhage, and 57 of these had intraventricular hemorrhage (13.8 percent of the total). A definite relationship was found between intra-ventricular hemorrhage and prematurity (low gestational age). Patient material included a total of 28,003 live-born infants examined over a 10-year period. Of those infants with a birth-weight over 2,501 grams who had intracranial hemorrhage, only 10 percent had intraventricular hemorrhage, while among premature infants nearly half had this type ($p < 0.001$). The lower the birth-weight of an infant, the more it was likely that an intracranial hemorrhage would be intraventricular rather than extraventricular. Both types of hemorrhage were most common in infants with birth-weights under 1,000 grams. Isolated intraventricular hemorrhage was more common in low birth-weight infants than combined intra- and extra-ventricular bleeding.

When the influence of fetal age, birthweight, and body length were evaluated, it was found that low gestational age was most highly correlated with intraventricular hemorrhage. The risk increased rapidly for infants below 32 weeks fetal age. (14 refs.) - R. Froelich.

ul. Kozmonautov 8
Martin, Czechoslovakia

622 Cooke, W. A. R. Evaluation of the midforceps operation. American Journal of Obstetrics and Gynecology, 99(3): 327-332, 1967.

Evaluation of the 7,019 deliveries performed at the Queen Elizabeth Hospital, Montreal, between 1960 and 1965 showed that 66 percent of the maternal trauma and 90 percent of the fetal trauma occurred in the "difficult midforceps" group. Excluding Pipers forceps, 2,292 forceps deliveries were performed; 427 of these (or 6.08 percent of total deliveries) were midforceps, with 35.6 percent classified as difficult. Indications for midforceps included midpelvic arrest (380), midpelvic arrest and fetal distress (25), fetal distress (10), abruptio placenta (3), uterine inertia (2), and prolapsed cord (1). Midpelvic operations were done either on the transverse position or posterior position. There were 266 primiparas and 161 multiparas. Maternal trauma included episiotomies (384), first and second degree lacerations (29), sphincter lacerations (43), complete tears (29), cervical lacerations (42), and vault lacerations (7). Fetal trauma included cephalohematoma (23), transient facial paralysis (18), Erb's palsy (2), skull fracture (2), facial and scalp lacerations (5), extensive bruising (2), and severe depression (5). Only 4 fetal deaths occurred. Although midforceps is currently a valuable procedure in modern obstetrics, this study shows that it is not without danger. Cesarean section is safer and should replace the difficult midforceps procedure. (9 refs.) - R. Froelich.

Suite 625
5025 Sherbrooke Street West
Montreal 28, Quebec, Canada

623 Gurdjian, E. S., Hodgson, V. R., Thomas, L. M., & Patrick, L. M. High speed techniques in head injury research. Medical Science, 18(11):45-46, 1967.

High speed cinephotography and a flash X-ray technique were used in animal and cadaver studies to show that the scalp, skull, and brain have relative movements during impact and that the mechanisms that result in head injuries are complex. The Fastax WF-17T rotating prism camera permitted a peak up to 7,000 frames/sec camera speed. Flash X-ray equipment could record the displacement of internal organs, skeletal framework, and passage of penetrating missiles. In addition to anesthetized dogs, cats, and stumptail monkeys, human cadavers were used. A mid-occipital impact to the monkey and cat showed that the scalp and skull moved at different rates of acceleration. An impact to the human cadaver mid-forehead produced a linear skull fracture in the parietal occipital area which was due to elastic deformation of the skull with the outbent region tensile forces causing a fracture. Impact of the human cadaver against an automobile windshield demonstrated hyperextension and hyperflexion of the head on the neck. X-rays of dogs perfused with radioopaque material showed considerable brain and brain-stem distortion during a frontal blow. This indicates that the brain is elastic and returns to its pre-impact position. There are compression, tension, and shear forces acting on the injured head; these can produce intracranial injuries without skull fracture. (8 refs.) - R. Froelich.

Department of Neurosurgery
School of Medicine
Wayne State University
Detroit, Michigan 48200

624 Bleck, E. E. Spastic abductor hallucis. Developmental Medicine and Child Neurology, 9(5):602-608, 1967.

Surgical release of the abductor hallucis in 18 spastic cerebral palsied children (CA 3½ to 12 years) with adduction deformities of the forefoot resulted in correction of the forefoot abduction in 16 of the children. The selection of patients was based on clinical and radiological findings and the results of nerve-muscle block examinations. The latter were made by infiltration of the abductor hallucis with lidocaine. If the abductor hallucis was responsible for the deformity, the forefoot abduction was decreased. Six Ss required bilateral abductor hallucis release. Eight patients had had previous gastrocnemius lengthening procedures which sometimes had resulted in forefoot abduction deformities because the abductor hallucis acted as a substitute for the weakened calf muscles. At the time of abductor hallucis release, 13 children received additional surgery, including gastrocnemius lengthening in 8 and Achilles tendon lengthening in 2. The Ss were followed for 1 to 3½ years. The only postoperative complication

that occurred was hallux valgus in 2 patients, both of whom were 10 years of age and perhaps had had too much fixed abduction of the first metatarsal for correction by muscle release alone. Abductor hallucis release was considered to be a simple procedure to alleviate a deformity of the spastic foot. (3 refs.) - R. Froelich.

4 El Cerrito
San Mateo, California 94421

625 Bobath, K., & Bobath, B. The neuro-developmental treatment of cerebral palsy. Physical Therapy, 47(11):1039-1041, 1967.

Since the object of the neuro-developmental treatment (NDT) of cerebral palsy (CP) is to enable the affected child to gain control over his abnormal sensori-motor activities in order to function more normally, it should not be used with a regimen that requires prolonged use of casts or braces and may have only limited success if irreversible joint and muscle changes have taken place. The object of NDT is to inhibit the abnormal patterns and facilitate the normal ones. Weak muscles are generally those which cannot function properly because of lack of synergic fixation or excessive antagonist activity. Once their inhibiting conditions are overcome, weak muscles generally are strong enough to perform more normal patterns. If not, special NDT techniques can be used to strengthen them. NDT aims to encourage normal postural activity and to develop complex and selective motor patterns from more primitive movement. Since hypertonicity causes a continual changing pattern of motor and postural activity, NDT is capable of using this lability to develop more normal and stabilized patterns of function. (8 refs.) - E. Gaer.

Western Cerebral Palsy Center
London, England

626 Bobath, Berta. The very early treatment of cerebral palsy. Developmental Medicine and Child Neurology, 9(4):373-390, 1967.

Illustrated examples of basic postural patterns that should and should not be used in treating cerebral palsy are discussed with attention focused on early diagnosis and treatment. Early treatment is important because of the plasticity of the brain in infancy, the importance of initial sensori-motor learning, the prevention of sensori-motor deprivation and MR, the ability to overcome relatively weak abnormal postural reflex activity, the prevention of contractures and deformities, and the conservation of time (since treatment in infancy may require less time). The aims of treatment are: (1) to develop normal postural reactions and tone, (2) to counteract abnormal postural reactions, (3) to develop functional patterns, and (4) to prevent contractures and deformities. Basic postural patterns of an infant are described and 7 examples of these patterns illustated. Unless an infant with cerebral palsy is handled by someone with skill during the first 8 months, he will learn abnormal postures. Only limited results can be accomplished if treatment is started later than 1 or 2 years of age. This demonstrates the importance of early diagnosis and development of a treatment plan. (13 refs.) - R. Froelich.

Western Cerebral Palsy Centre
20 Wellington Road
London, N. W. 8, England

627 Silver, Caroll M., Simon, Stanley D., Spindell, Edward, Litchman, Henry M., & Scala, Michael. Calcaneal osteotomy for valgus and varus deformities of the foot in cerebral palsy: A preliminary report on twenty-seven operations. Journal of Bone and Joint Surgery, 49A(2):232-246, 1967.

Patients in this series have been followed for from 2 to 5-1/2 years since operation and 26 of the feet have been observed over more than 2 years. Although the series is small and follow-up too short to draw definite conclusions, early results are encouraging enough to warrant presentation of the rational and technically simple procedure used. Surgical procedures are described, with illustrations included. An analysis of results and a discussion of complications complete the report. Calcaneal osteotomy is considered an effective procedure for these deformities since it improves weight-bearing alignment of the foot and does not impair subtalar or midtarsal joint function. In some such deformities of the feet supplementary soft tissue procedures, carried out at the time of operation, may be required. The osteotomy can be performed in children as young as 3 years of age. (11 refs.) - (Source: Rehabilitation Literature, 28(9): 298, 1967).

225 Waterman Street
Providence, Rhode Island 02906

Disease or disorders of metabolism, growth, or nutrition

628 Ghadimi, H. Diagnosis of inborn errors of amino acid metabolism. American Journal of Diseases of Children, 114(4):433-439, 1967.

More than one-half of the 27 currently known inborn errors of amino acid metabolism are associated with MR. Only 4 (albinism, alcaptonuria, tyrosinosis, and phenylketonuria) have pathognomonic clinical pictures. Only albinism has characteristic findings at birth; the others require time for development of signs and symptoms. Specific diagnosis necessitates quantitative analysis of body fluids for amino acids and their metabolites. Persistent levels greater than 60 percent above normal are significant. In many instances, early diagnosis and prompt institution of dietary therapy will prevent permanent tissue damage. (32 refs.) - W. A. Hammill.

506 Sixth Street
Brooklyn, New York 11215

629 Hirsch, W., Mex, Annemarie, & Vogel, F. Metabolic traits in mentally retarded children as compared with normal populations: Phenylalanine and tyrosine in serum and urine. Journal of Mental Deficiency Research, 11(3): 212-227, 1967.

A survey of MR Ss (IQ 60-90) of unknown etiology revealed alterations in serum amino acids. Paper electrophoresis of serum and urine in 511 MR Ss (ages 2-17 years) and 267 control Ss (ages 2-18 years) revealed a higher phenylalanine (PA) to tyrosine (T) ratio in the MR group. Complete medical, neurological, psychological, and psychometric examinations were done on all Ss. Micro-neurological signs (hyperactive reflexes, tendency toward ataxia, subtle extrapyramidal signs) were more common in Ss with a PA/T ratio of more than 1.0. Serum levels of PA after oral loading were no different than those of control Ss and much lower than those of heterozygous PKU Ss. The altered ratio was due to both a higher serum PA and a lower urine T in the abnormal group. The abnormality is not a block of PA hydroxylase but is probably of genetic origin. (6 refs.) - W. A. Hammill.

Universitäts-Kinderklinik der
Freien Universität Berlin
1 Berlin 19
Heubnerweg 6, Germany

630 Menkes, John H. Pathogenesis of retardation in errors of amino acid metabolism. Pediatrics, 40(1):142, 1967. (Letter: comment on letter by J. Dancis, & M. E. Balis)

Phenylketonuric individuals have diluted hair and iris pigmentation reversible by phenylalanine restriction or tyrosinase supplementation. Tyrosinase inhibition by phenylalanine suggests one of several possible melanin inhibition sites. Others include: (1) tyrosine transport into melanocytes; (2) tyrosine liberation from peptide precursors within melanocytes; and (3) oxidation-reduction of pteridines. In vitro enzyme system blocking by phenylalanine does not imply specific responsibility for the clinical picture. (6 refs.) - J. Snodgrass.

UCLA School of Medicine
Los Angeles, California 90024

631 Russell, James D., & DeMars, Robert. UDP-glucose: α-D-galactose-1-phosphate uridylyltransferase activity in cultured human fibroblasts. Biochemical Genetics, 1(1):11-24, 1967.

Galactose-1-phosphate uridyl transferase activity of fibroblasts from normal, heterozygous and galactosemic humans varied in high-density, stationary-phase cultures according to genotype. Material for study was obtained from skin biopsies. "Transferase" is the enzyme converting galactose-1-P + UDP-glucose into UDP-galactose + glucose-1-P. Galactosemic individuals have little or no "transferase" activity in red blood cells and heterozygotes have activity lower than normal. A new direct method of assaying "transferase" in fibroblast cultures was described. The variables of this assay were studied using sonicated preparations of normal fibroblasts. During rapid growth of

cultured fibroblasts, the galactosemic strains showed nearly normal transferase activity. The incorporation of ^{14}C from $^{14}C_1$-galactose into living cells did not differ between heterozygotes and normals, but homozygotes incorporated ^{14}C at one-half the normal rate throughout the culture cycle. This method overcomes the difficulty imposed by the presence of epimerase in fibroblasts. Variables that affect the assay were studied and implications for future genetic studies discussed. It seems certain that this assay is a direct measurement of transferase activity in the stationary-phase of fibroblasts and can differentiate between galactosemics, heterozygotes, and normals. (31 refs.) - R. Froelich.

Laboratory of Genetics
University of Wisconsin
Madison, Wisconsin

632 Froelich, Ralph D. Serotonin and the central nervous system. (Unpublished Master's thesis.) The Ohio State University, Columbus, Ohio, 1967, 115 p.

A review of the literature pertaining to serotonin in the central nervous system is presented and an experimental study of a serotonin receptor bioassay described. The anatomical, biochemical, physiological, and pharmacological aspects are reviewed in detail. Serotonin metabolism has been suspected of being altered in a number of pathological states including schizophrenia, depression, phenylketonuria, trisomy 21, epilepsy, Parkinson's syndrome, maple syrup disease, migraine headache, carcinoid syndrome, Hartnup's disease, chromosomal mosaicism, hepatic coma, and meningitis. Altered tryptophan metabolism has been suspected in porphyria, pellagra, congenital tryptophanuria with dwarfism, and indolylacroyl glycine excretion. Central nervous system deficiency of serotonin has been found in experimental PKU and inferred in trisomy 21. This suggests the possibility that the deficient serotonin is responsible for the MR that occurs in these disorders. Conflicting with this hypothesis is the finding that serum serotonin is increased in some spastic MR children. The function of serotonin in the brain in healthy and diseased states is complicated by the fact that it is closely related to many other neurohumors such as norepinephrine, dopamine, and histamine. An attempt to repeat Woolley's serotonin receptor bioassay was unsuccessful. It was concluded that this bioassay method is not applicable to study of human serum. (275 refs.) - (Author abstract)

3566 Panama Drive
Westerville, Ohio

633 Stephenson, J. B. P., & McBean, M. S. Phenylketonuria: A reassessment of mass infant screening by napkin test. British Medical Journal, 3(5565):582, 1967.

When used with 15 true PKU children, the napkin-Phenistix test was found to be a grossly inadequate screening device. All napkin-Phenistix tests were negative during the first 3 weeks of life, and only 1 of 4 was positive during the 5-10 week life period. Four children with negative Phenistix tests over the age of 5 weeks were obviously affected at the time of diagnosis and gave strong positive reactions to the urine ferric-chloride test. Their IQs ranged from 43 to 51 (Cattell or Griffiths). This study shows that the napkin-Phenistix is not an efficient test for detection of classical PKU and is particularly ineffective in detection of early cases. These findings conflict with previous reports in which the test was considered to be sensitive and reliable. The hard work that is being done in the execution of mass screening programs should be directed toward achieving a more efficient method of detection. (10 refs.) - R. Froelich.

Medical Paediatrics
Royal Hospital for Sick Children
Glasgow C.4, Scotland

634 Steisel, Ira M., Friedman, C. Jack, & Wood, Alfred C., Jr. Interaction patterns in children with phenylketonuria. Journal of Consulting Psychology, 31(2):162-168, 1967.

In previous studies of behavioral deviations accompanying phenylketonuria (PKU), disturbances in personality are cited by Kaplan (1962) as second in prominence to mental retardation. The present study compared 4

groups (PKU, retarded and/or brain damaged, psychotic, and normal) on a measure of interaction behavior, a structured play situation involving the child and an experimenter. On total interaction scores, the PKU group was found to have performed significantly poorer than the normal group but significantly better than the psychotic group. Findings confirmed prior impressions that children with PKU are behaviorally heterogeneous. A need for further study of personality variables in children with phenylketonuria is clearly evident; the present study demonstrates the feasibility of such research. (18 refs.) - (Source: Rehabilitation Literature, 28(9):302, 1967)

St. Christopher's Hospital
for Children
2600 Lawrence Street
Philadelphia, Pennsylvania 19133

635 Edwards, Eileen M. The developmental status of a sample of children with phenylketonuria. Australian Paediatric Journal, 3(1):29-35, 1967.

Some beneficial change in behavioral and social responses was observed in at least 4 of the 14 children with PKU following treatment with a low phenylalanine diet. The 6 boys and 8 girls were between the ages of 7 months and 4 years. The purpose of the study was to evaluate intellectual functioning at the beginning of the diet and at regular periods thereafter. This report was limited to the psychological findings. The average follow-up was psychological reassessment every 6 months for 2 years and then yearly. The Griffiths Scale for Babies was used to evaluate the initial mental level, and the Binet (L-M) test was used for children with a mental level over 2 years. Social withdrawal was the most distinctive characteristic of one-half of the children before treatment. The Developmental Quotient (DQ) or IQ ranged from 27 to 80 at the beginning of the study. Over a 1 year period, 4 developed a normal interest in people and things, 3 developed some social response, 2 developed some purposeful activity, and 3 became less irritable. Purposeful behavior was most likely to occur in children with a DQ above 50. The mental level increased in 10 Ss and decreased in 3 during the first year after treatment. The degree of loco-motor progress was not a reliable predictor of later progress unless accompanied by the development of other skills. This study points out the importance of detecting and treating PKU at an early age. Response to treatment varies, and further research is necessary to clarify the factors operating in this disease. (8 refs.) - R. Froelich.

Royal Children's Hospital
Melbourne, N. 2.
Australia

636 Forssman, H., Kristensson, K., Sourander, P., & Svennerholm, L. Histological and chemical studies of a case of phenylketonuria with long survival. Journal of Mental Deficiency Research, 11(3): 194-206, 1967.

Autopsy of a 55-year-old woman with PKU revealed fatty metamorphosis of the liver, slight and discrete demyelination, and slight alteration of the fatty acid content of the brain galactolipids. The S had typical features of PKU including small birth weight, SMR, seizures, hyperactivity, diminished pigmentation, and positive urine ferric chloride test. The brain weighed 900 grams with some narrowing of gyri and pachygyri. The white matter was firmer than normal, with pallor and gliosis. Thin layer and gas liquid chromatography revealed normal content of cerebrosides, sulfatides, fatty acids, and sphingosines. The galactolipids had an increased concentration of medium chain (C-16 to C-18) normal fatty acids. No sudanophilic lipids or cholesterol esters were found in the areas of demyelination and gliosis. Increased medium chain fatty acids are common in infant brains, and the present finding may represent an arrest in brain development in PKU. (22 refs.) - W. A. Hammill.

St. Jorgens Hospital
Lillhagen, Sweden

637 Berman, Phyllis W., Waisman, Harry A., & Graham, Frances K. Effectiveness of dietary treatment in phenylketonuria: What is the proof? Developmental Medicine and Child Neurology, 9(4):411-418, 1967.

Although a previous study of 22 diet-treated PKU children had suggested that the beginning of treatment is negatively correlated with initial IQ, a literature review of 92 PKU cases that were identified through sibships supports the finding. A mean rise of 7.5 IQ

points was found when 22 PKU children were treated by diet (from 64.3 to 71.8). No conclusions from this study could be made because of sampling bias. It was not known what would have occurred without treatment, and it is felt that comparison with sibs would offer a control of socioeconomic and associated factors. Cases in the literature were obtained from 1947 to 1966 from 39 English language articles. Ages of PKU patients ranged from the neonatal period to 20 or more years. The mean IQ of the neonatal group was 92.8 and decreased to 35.3 for the adult group. The decline of intelligence was clear but the significant factors were not as clear. Institutionalization may have caused some of the decrease, but noninstitutionalized cases also showed a decline. The results were not unequivocal and many important questions about phenylketonuria remain unanswered. (40 refs.) - R. Froelich.

Department of Pediatrics
University of Minnesota
Minneapolis, Minnesota

638 Waisman, Harry A. Role of hyperphenylalaninemia in pregnant women as a cause of mental retardation in offspring. American Journal of Obstetrics and Gynecology 99(3):431-433, 1967.

Since amino acids are actively transported across the mammalian placenta, elevated maternal blood concentrations of any of these acids will result in exaggerated levels in the developing fetus. This may produce brain damage in an otherwise normal offspring. The dietary therapy available for phenylketonuria (PKU) for 15 years has produced female PKU Ss with normal intelligence who may marry and bear children. Proper management can prevent damaged children. Heterozygous females need no treatment. Women with slightly elevated serum phenylalanine (PA) should avoid high protein diets. PKU women should be advised about contraception and should avoid pregnancy. If pregnancy does occur, protein should be avoided; if previous offspring have been retarded, specific restriction of PA is indicated. (6 refs.) - W. A. Hammill.

1300 University Avenue
Madison, Wisconsin 53706

639 Bessman, Samuel P. Maternal phenylketonuria. New England Journal of Medicine, 276(20):1159-1160, 1967. (Letter)

A previous article stating that PKU mothers have nonspecifically retarded children at a higher rate than the normal population did not provide adequate evidence. From this untenable conclusion, an editorial advises physicians to give a low phenylalanine diet to pregnant mothers with high blood phenylalanine. The jump from an unsupported hypothesis to practice is made without evidence from animal experiments on the effects of phenylalanine restricted diets on the blood concentration of phenylalanine in pregnant animals or on the course of pregnancy. (No refs.) - J. Snodgrass.

University of Maryland
Baltimore, Maryland 21200

640 Mabry, C. Charlton. Maternal phenylketonuria. New England Journal of Medicine, 276(20):1160, 1967. (Letter: reply to Samuel P. Bessman)

The data criticized by Dr. Bessman are interpreted differently. The 3 PKU mothers with 4, 4, and 2 children were presented with evidence that all 10 had IQs significantly lower than their parents, an occurrence with a probability of $(0.03)^{10}$. The accompanying editorial is not interpreted as an uncontrolled license for human experimentation. (1 ref.) - J. Snodgrass.

University of Kentucky
College of Medicine
Lexington, Kentucky 40500

641 Woolf, L. I. The dietary treatment of phenylketonuria: Not proven. Developmental Medicine and Child Neurology, 9(2): 244-245, 1967. (Letter)

It has been suggested that the efficacy of treatment of PKU with low phenylalanine diet is not proven. Scientifically, the etiological theory and treatment corollary have been repeatedly demonstrated, and controlled research is no longer necessary. The existence of PKU with normal IQ does not mean necessarily absence of damage, for damage may be expressed in ways other than MR. (8 refs.) - J. Snodgrass.

Department of the Regius
Professor of Medicine
Radcliffe Infirmary, Oxford

642 Rendina, G., Ryan, M. F., DeLong, Johanna, Tuttle, J. M., & Giles, C. E. Some biochemical consequences of feeding excesses of phenylalanine to rats. Journal of Mental Deficiency Research, 11(3):153-168, 1967.

Feeding rats excess phenylalanine (PA) caused alterations in liver and brain protein synthesis and in enzyme activity but did not

299-809 O - 68 - 3

affect learning ability. Groups of weanling rats were fed ad libitum regular diet, diet supplemented with 5 percent PA, 7 percent PA, and pair-fed for 14 days. Five or 6 animals were sacrificed at 14 days and studied for serum PA and tyrosine, brain and liver protein electrophoresis, liver PA hydroxylase, PA transaminase, and phenylpyruvate (PP) hydroxylate activity. The remainder were fed normal diet ad libitum for 14 days, sacrificed, and similarly studied. Shock avoidance studies were done on day 12 and day 13. Protein content and liver, brain, and total body weight were reduced in the experimental group. PA hydroxylase and PP hydroxylase were reduced, but PA transaminase was elevated in the PA-fed animals. Serum and brain PA and tyrosine were elevated. No difference in shock avoidance was noted. Electrophoresis demonstrated abnormal protein synthesis in the PA fed animals. After 14 days of normal diet, all changes were reversed except liver PA hydroxylase, which remained low. Amino acid imbalance may cause brain damage by sustained abnormal protein synthesis. (47 refs.) - W. A. Hammill.

Bowling Green State
University
Bowling Green, Ohio

643 McKean, C. M., Lieberman, R., & Webb, R. B. Experimental phenylketonuria in infant pigs. Developmental Medicine and Child Neurology, 9(5):541-543, 1967.

The infant miniature pig has proven to be a useful animal for study of experimental PKU particularly because of its easy maintenance, well developed brain analogous to the human, accessibility of blood samples, and low hepatic phenylalanine hydroxylase activity. Because the miniature breed is less than one-half the size of the standard pig, handling and feeding are more convenient. The newborns drink milk from a dish within a few hours of birth and suffer less from anorexia than other species. The low phenylalanine hydroxylase activity permits the maintenance of a high blood phenylalanine with small phenylalanine supplements. The superior vena cava permits repeated blood samples to be obtained, and cerebrospinal fluid can be withdrawn at an early age. The electroencephalogram can be used with either surface or implanted electrodes. Histological and biochemical study can be readily carried out on the brain. The fact that the pig reaches adolescence by 6 months of age allows complete study over a relatively short time. (7 refs.) - R. Froelich.

Brain Behavior Research
Center
Sonoma State Hospital
Eldridge, California 95431

644 Robert, __. Information, genetique, phénylcétonurie. (Information, genetics, and PKU). Nos Enfants Inadaptes, 24(4):13-14, 1967.

Problems associated with the discovery of a PKU child include parental reactions, protection of the child, and family dynamics. It is necessary to educate the parents whose reaction varies from guilt to negative fatalism in regard to the genetic possibilities of future children and the care needed. (No refs.) - C. A. Pepper.

No address

645 Graw, Robert G., & Koch, Richard. Phenylketonuria in two American Negroes. American Journal of Diseases of Children, 114(4):412-418, 1967.

Phenylketonuria was found in 2 Negro brothers (ages 4 and 2 yrs) with MR, eczema, and neurologic disorders. The younger, who had a serum phenylalanine (PA) concentration of 39 mg percent and a Gesell developmental quotient of 53, responded well to a low PA diet (serum PA less than 6 mg percent and neurologic improvement). The older sibling, who was diagnosed through family testing, had an IQ of 75 and an abnormal EEG. Maternal IQ was 40, but the mother had normal PA metabolism. Although the affected Ss and their sibs were light-skinned and had blue-gray eyes, no family white admixture could be ascertained. Assuming that there is a 30 percent white admixture in Negroes, the predicted incidence of PKU in Negroes is one-ninth the incidence in whites; however, reported cases in American Negroes are rare. (10 refs.) - W. A. Hammill.

National Cancer Institute
Bethesda, Maryland 20014

646 Berry, Helen K. Phenylketonuria: Experiment in nutritional deficiency. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 19 p. Mimeographed.

Case histories and current literature about the problem of PKU support the view that because proper dietary treatment, although very effective, is difficult to attain and tedious to maintain, making diagnostic programs compulsory would be premature at this time. One important problem in treatment of PKU is avoiding phenylalanine deficiency and protein malnutrition, which can result in failure to gain weight, refusal to eat, anemia, hypoproteinemia, and interference with staging and timing of neurological and intellectual development. There is no reason to believe that PKU children do not require some phenylalanine for growth and development. In 1 case the maintenance of phenylalanine levels above 3 mg percent and below 7 mg percent proved satisfactory. Optimum growth depends on obtaining proper protein intake without increasing phenylalanine intake. Normal IQ scores in PKU children given proper treatment are no longer surprising. The degree of retardation is not always directly related to levels of phenylalanine, and untreated PKU children with normal intelligence have been reported. (30 refs.) - R. Froelich.

Children's Hospital
Research Foundation
University of Cincinnati College
of Medicine
Cincinnati, Ohio 45200

647 Campbell, Marie A., Ferguson, Isobel C., Hutchison, James H., & *Kerr, Margaret M. Diagnosis and treatment of hypoglycaemia in the newborn. Archives of Diseases in Childhood, 42(224):353-360, 1967.

Routine Dextrostix evaluation of neonatal blood sugar revealed 22 Ss with hypoglycemia (less than 40 mg percent) of 1,000 consecutive admissions. All Ss admitted to the neonatal nursery were tested on admission and 6 hours later if feeding or treatment did not intervene. Nine Ss were asymptomatic, 4 were secondary to other disease, and 9 were symptomatic (twitching, convulsions, apnea, or lethargy). Three Ss were mentally retarded at follow-up. At age 6 hours, 75 percent of Ss had blood sugars of 40 mg percent. Dextrostix are easily used and are very useful in early diagnosis of hypoglycemia in infants before brain damage occurs. (14 refs.) - W. A. Hammill.

*Queen Mother's Hospital
Yorkhill, Glasgow
Scotland

648 Baker, Lester, Kaye, Robert, Root, Allen W., & Prasad, A. L. N. Diazoxide treatment of idiopathic hypoglycemia of infancy. Journal of Pediatrics, 71(4):494-505, 1967.

Diazoxide treatment of 8 children with severe idiopathic hypoglycemia was highly effective. Six had been receiving glucocorticoids in high doses with fair to poor results. The age at diagnosis ranged from 5 days to 2½ years. All had symptoms of seizures, twitching or coma. Other treatment methods that had been unsuccessfully tried in one or more patients were low leucine diet, zinc glucagon, long-acting epinephrine, infusion of plasma from diabetic patients with anti-insulin antibodies, and partial pancreatectomy. The results of diazoxide treatment were excellent in 7 Ss and good in 1. In some the response was dramatic. Patients were on diazoxide for 4 to 18 months, and continued use of the drug seemed to increase its effectiveness. Three patients on diazoxide lost their leucine sensitivity. Side effects included hypertrichosis lanuginosa in all patients, advancement of epiphyseal maturation in 1, depression of immunoglobulin-G in 5, and moderate hyperuricemia in all patients. Excessive body hair was a significant cosmetic problem in 4 Ss. Dosage level varied from 5 mg/kg to 12 mg/kg, with 5 to 8 mg accepted as the best starting dosage. The drug's action appears to be related to its suppression of insulin response to a standard glucose or leucine load. There were no significant changes in plasma fatty acid levels, and growth hormone was not found to play a role. (28 refs.) - R. Froelich.

University of Pennsylvania
School of Medicine
Philadelphia, Pennsylvania

649 Ehrlich, Robert M., & Martin, Julio M. Tolbutamide tolerance test and plasma-insulin response in children with idiopathic hypoglycemia. Journal of Pediatrics, 71(4): 485-493, 1967.

Fifteen children with idiopathic hypoglycemia were differentiated from 10 normal children by means of the tolbutamide tolerance test. All affected children had repeated low blood-sugar values, with age of onset between 36 hours and 18 months. Tolbutamide induced a rapid drop of blood sugar in all Ss, but those with hypoglycemia retained low values for longer periods of time (30 to 120 minutes after administration of tolbutamide). The mean plasma-insulin was 5 μU/ml for the normal children and 15 μU/ml for the hypoglycemic children. In response to tolbutamide the insulin levels increased more in all but 4 of the hypoglycemic children. Two of these children had low blood sugar values at the beginning of the test; 2 had high plasma-insulin values throughout the test. Blood sugar values in hypoglycemic children tended to be low during an oral glucose tolerance test. With the criteria of 2 blood sugar values below 40 mg percent from 45 to 120 minutes after tolbutamide administration, the tolbutamide tolerance test can be used to differentiate hypoglycemic children. The insulin-glucose ratio after intravenous tolbutamide and oral glucose administration shows that children with idiopathic hypoglycemia have hyperinsulinism, which may be the important pathogenetic factor in this disorder. (15 refs.) - R. Froelich.

University of Toronto
Toronto, Ontario, Canada

650 Root, Allen W., Rosenfield, Robert L., Bongiovanni, Alfred M., & Eberlein, Walter R. The plasma growth hormone response to insulin-induced hypoglycemia in children with retardation of growth. Pediatrics, 39(6):844-852, 1967.

The response of plasma growth hormone (HGH) concentration to insulin-induced hypoglycemia in children with various growth disorders indicated that only patients with hypopituitarism failed to show an increase. Ss included 10 normal children, 2 with genetic short stature, 9 with constitutional delay in growth and development, 6 with Down's syndrome, 2 with Turner's syndrome, 5 with glucocorticoid-induced growth suppression, 11 with idiopathic hypopituitarism, 6 with craniopharyngioma, 3 with diabetes incipidus, and 7 with primary hypothyroidism. Plasma HGH levels were measured by a modified double-antibody radioimmunoassay. The 11 Ss with idiopathic hypopituitarism and 4 of the 6 Ss with craniopharyngioma did not show a significant increase of plasma HGH in response to a hypoglycemic stimulus. The decreased responsiveness of the 3 patients with hypothyroidism returned to normal when a euthyroid state was obtained. The plasma HGH response to insulin-induced hypoglycemia effectively distinguished patients with hypopituitarism from those with intact pituitary-growth-hormone function. A quantitative difference is suggested between the growing child's control of growth hormone secretion and the adult's. (32 refs.) - R. Froelich.

Children's Hospital of
Philadelphia
1740 Bainbridge Street
Philadelphia, Pennsylvania 19146

651 Frasier, S. Douglas, Hilburn, Jean M., & Matthews, Nancy L. Serum growth-hormone response to hypoglycemia in dwarfism. Journal of Pediatrics, 71(5):625-638, 1967.

Radioimmunoassay of serum growth-hormone (GH) levels after insulin-induced hypoglycemia in 10 controls and 59 Ss with dwarfism demonstrated that a normal response of 5 millimicrograms (mmg) per ml indicates unimpaired GH function, no detectable response indicates GH deficiency, and less than 5 mmg per ml suggests GH deficiency. Hypoglycemia was induced in 10 controls, 19 Ss with pituitary or central nervous system (CNS) lesions, 13 Ss with clinically suspected GH deficiency, 10 Ss with constitutional delay in growth, and in 17 Ss with various growth retardation (GR) syndromes by the intravenous injection of crystalline insulin after an overnight fast. Serum glucose and GH levels were determined 0, 15, 30, 60, 90, and 120 minutes after the insulin. All Ss were euthyroid, and minimum blood sugars fell to less than 55 mg/100 ml or below 66 percent of fasting. Control Ss responded with a minimum of 8 mmg/ml increase in GH. Three of 18 pituitary or CNS lesion Ss responded with a detectable rise in GH with a maximum rise of 3.5 mmg/ml. Suspected GH deficient Ss showed 3 with no response, 7 with a 4.5 mmg/ml maximum response, and 3 comparable to or in excess of controls. Response of Ss with constitutional delay in growth was indistinguishable from that of controls and the non-pituitary GR Ss also responded like the controls. All Ss with growth rates of 5 cm/yr or more responded with 5 mmg or more and 27 of 30 Ss with growth rates under

5 cm/yr responded with GH levels under 5 mmg/ml. Overnight fasting GH levels in non-responders to hypoglycemia were not detectable or under 5 mmg/ml-suggesting that a fasting serum GH below this level is an indication for testing the GH response to insulin-induced hypoglycemia. GH response to insulin-induced hypoglycemia is an indicator of the integrity of GH function in Ss with GR. (40 refs.) - A. C. Molnar

Los Angeles County General
Hospital
1200 North State Street
Los Angeles, California 90033

652 Ehrlich, Robert, Martin, Julio, & Bain, Harry W. Comment on management of hypoglycemia. Journal of Pediatrics, 71(4):621-622, 1967.

Idiopathic hypoglycemia in infants is due to an abnormal relationship between blood sugar and insulin levels. This may be caused by an excess of insulin, an excessive sensitivity to insulin, or both. Hypoglycemia can be precipitated by oral leucine or intravenous tolbutamide. Untreated hypoglycemia causes permanent brain damage. Sub-total pancreatectomy or treatment with diazoxide, a non-diuretic thiazide compound, may prevent attacks or make them easier to control and prevent brain damage. (5 refs.) - W. A. Hammill.

No address

653 Banker, Betty Q. The neuropathological effects of anoxia and hypoglycemia in the newborn. Developmental Medicine and Child Neurology, 9(5):544-550, 1967.

The neuropathological effects of neonatal anoxia and hypoglycemia include subependymal hemorrhage, microcephaly, and changes in the white and gray matter. Sixty-six cases of subependymal hemorrhage with intraventricular rupture were observed in a 3-year period. This is a particularly common complication with low birth weight and anoxic encephalopathy. An infant who survives this complication may develop obstructive hydrocephalus from blood clots in the foramina and posterior fossa. Anoxic encephalopathy diffusely damages the gray matter in the telencephalon and the rostral brain stem and produces karyorrhexis and a relative absence of tissue reaction. The white matter is affected in 2 characteristic forms - one involving the periventricular white matter and the other involving the subcortical white matter. The first form is found more frequently in the premature infant under 2 weeks of age. When white matter damage occurs, gray matter damage usually is effected as well. When these infants survive the acute episode, their brains manifest a decrease in size and weight. The most unusual characteristic of 3 infants with hypoglycemic encephalopathy was microcephaly. Although the pathological findings in these neonatal disorders are distinctive, the clinical features are similar and include seizures, weak cry, lethargy, hyperirritability, and hypotonia. (6 refs.)- R. Froelich.

Department of Pathology
Cleveland Metropolitan
General Hospital
Cleveland, Ohio 44109

654 Bower, B. D., Rayner, P. H. W., & Stimmler, L. Leucine-sensitive hypoglycaemia treated with diazoxide. Archives of Diseases in Childhood, 42(224):410-415, 1967.

Leucine induced hypoglycemia can be controlled with diazoxide. Two Ss with severe hypoglycemia and elevated serum insulin levels following leucine ingestion were treated for 6 and 7 months with diazoxide (12 mg/kg). Both responded with fewer hypoglycemic episodes, normalization of leucine tolerance tests, and lower serum insulin levels. The only side effect noted was hirsutism. One S had an IQ of 93 at age 5 years (Terman-Merrill Scale); the other S is microcephalic, and appears severely retarded. Early detection of leucine induced hypoglycemia with effective treatment with diazoxide during the period of rapid brain growth and development may prevent the severe brain damage commonly seen. (26 refs.) - W. A. Hammill.

Radcliffe Infirmary
Oxford, England

655 Cox, Margaret, & Dunn, Henry G. Idiopathic hypoglycaemia and children of low birth-weight. Developmental Medicine and Child Neurology, 9(4):430-447, 1967.

Of 500 infants with a birth weight below 4½ pounds, 9 had idiopathic neonatal hypoglycemia, and 3 had idiopathic hypoglycemia after the neonatal period. Fourteen other children with idiopathic hypoglycemia after the neonatal period were included in the study; 3 of these were dysmature at birth. Two of the neonates ultimately showed definite MR. Of the post-natal group, 5 had either questionable or definite MR. Four of the neonates were considered dysmature since their weight for gestational age was below the tenth percentile. A total of 342 infants survived the infancy period. Of the 9 neonates with hypoglycemia, 3 have an abnormal neurological status and 3 have a questionable neurological status. Age of follow-up ranged from 1 to 4 years. Of the 17 children with post-neonatal hypoglycemia, 10 have an abnormal or questionably abnormal neurological status and 10 have an abnormal EEG. The outcome was significantly more abnormal in the children with hypoglycemia during or after the neonatal period than in other children of low birth-weight without hypoglycemia. Maternal toxemia or an abnormal placenta may be a useful diagnostic pointer. (45 refs.) R. Froelich.

Department of Pediatrics
University of British Columbia
Vancouver 9, British Columbia
Canada

656 Ruvalcaba, Rogelio H. A., Reichert, Albert, & Kelley, Vincent C. Hypoglycaemia and mental retardation. Lancet, 2(7507):153-154, 1967. (Letter)

Of 1,279 institutionalized retardates screened for hypoglycemia, 136 (10.6 percent) had blood sugar levels below 65 mg/100 ml as determined by the Dextrostix method. Further testing of these 136 Ss by the Somogyi-Nelson method revealed that 24 were hypoglycemic. These results suggest that the Dextrostix method is a useful mass screening tool. (5 refs.) - J. Snodgrass.

Rainier School
Buckley, Washington 98321

657 Soriano, Juan Rodriguez, Taitz, Leonard S., Finberg, Laurence, & Edelmann, Chester M., Jr. Hyperglycinemia with ketoacidosis and leukopenia. Pediatrics, 39(6):818-828, 1967.

Elevated serum concentrations of leucine, isoleucine, valine, glycine, lysine and ammonia observed during periods of ketoacidosis in an 11-month-old Negro boy with "idiopathic hyperglycinemia" suggest that his disorder is due to a generalized defect in amino acid utilization causing excessive deamination of some amino acids with consequent hyperammonemia and ketoacidosis. His psychomotor development was retarded, and when 2 weeks old he began having repeated episodes of vomiting. The child was small and hypotonic. Laboratory studies showed a hypochromic anemia and a leukopenia which became more severe during his initial course. To bring about clinical and biochemical amelioration, protein intake was limited to below 1.0 gm/kg. Although protein intake of 1.5 gm/kg effected exacerbation, the S could tolerate 3.0 gm/kg of an amino acid mixture containing no leucine, isoleucine, valine, methionine and threonine. He died at 17 months of age. This disorder differs from the hyperglycinemia caused by a specific disorder of glycine metabolism, but the specific defect in the amino acid metabolism of this patient with "idiopathic hyperglycinemia" is not known. Previously documented cases show that patients who survived to an older age had marked MR. (38 refs.) - R. Froelich.

Dr. Laurence Finberg
Montefiore Hospital
111 East 210 Street
New York, New York 10467

658 Gwinn, John L., & Barnes, George R., Jr. Radiological case of the month: Idiopathic hypercalcemia. American Journal of Diseases of Children, 113(6):707-708, 1967.

X-ray photographs are presented of the skull, wrist, and hand of a 2-year-old girl hospitalized because of slow physical and mental development. Phenylketonuria had been diagnosed at 13 months, but a low phenylalanine diet was poorly tolerated. The radiographs

showed dense, transverse bands in the metaphyseal areas of the tubular bones and indicated the possibility of increased density of the cortex. There was osteosclerosis in the orbits and base of the skull, and the sagittal suture was obliterated. These findings, together with physical examination and abnormal laboratory findings of non-protein nitrogen (40 mg/100 cc), calcium (12.3 mg/100 cc), protein bound iodine (40 mg/100 cc), and butanol extractable iodine serum (25 mg/100 cc) lead to a diagnosis of moderately severe idiopathic hypercalcemia. (3 refs.) J. Snodgrass.

Children's Hospital of
Los Angeles
4614 Sunset Boulevard
Los Angeles, California 90027

659 Wadman, S. K., Van Sprang, F. J., Van Stekelenburg, G. J., & De Bree, P. K. Three new cases of histidinemia: Clinical and biochemical data. Acta Paediatrica Scandinavia, 56(5):485-492, 1967.

Clinical and biochemical data on 3 children with histidinemia, when compared with that of controls matched for age, showed differences in the serum and urinary concentration of histidine and its metabolites. All 3 had motor and mental retardation and were diagnosed as having histidinemia by blood or urinary amino acid analysis. Screening of urinary amino acids and quantitative determination of its metabolites (imidazoleacetic acid, imidazolelactic acid, and N-acetylhistidine) was performed using 2-dimensional paper chromatography. Quantitative determination of serum, urinary, and cerebrospinal fluid (CSF) histidine was done using quantitative ion exchange chromatography. Serum, CSF, and urinary excretion of histidine were elevated in the 3 patients in comparison to controls. However, in comparison to 8 normal and 6 cystinuria children on a free diet, the urinary excretion levels could not be considered abnormal. Histidine metabolites also showed higher levels in the patients than in normal controls, with imidazolelactic acid having the highest concentration. Although histidinemia is of a milder character in comparison to PKU, possibly due to differences in amino acid concentration, nevertheless the high frequency of MR and speech difficulties in patients suffering from it warrants treatment of the disorder. Results of treatment will be dependent upon age since cerebral damage will be less in younger children, and a histidine restricted diet is suggested. (26 refs.) - E. Gaer.

Wihelmina Kinderziekenhuis
Nieuwe Gracht 127
Utrecht
The Netherlands

660 Van Sprang, F. J., & Wadman, S. K. Treatment of a patient with histidinemia. Acta Paediatrica Scandinavica, 56(5): 493-497, 1967.

Following treatment with a low histidine diet for 1½ years, a 1-year-old girl with histidinemia exhibited normalization of serum histidine and improvement in motor function and speech, but there was no change in the degree of MR. Dietary treatment included basal histidine-poor hydrolysate, cow's milk, maize oil, glucose, dextrine maltose, spinach, potatoes, orange juice, water, and amino acids (lysine, arginine, and tryptophane). The initial histidine intake (19.5 mg/kg/day) resulted in a reduction of serum histidine from 17.0 to 2.2 mg/100 ml within 13 days. The histidine intake was gradually increased in order to maintain a slightly elevated serum level of histidine. For a few months the fixed intake of histidine was set at 28 mg/kg/day, but when the serum histidine rose to 5 mg/100 ml, the intake was reduced to 14.9 mg/kg/day. This resulted in a serum histidine concentration of 2.50 mg/100 ml. Hemoglobin and serum protein were low during treatment, and growth was definitely retarded. The excretion of histidine, imidazolelactic acid, imidazoleacetic acid and N-acetylhistidine decreased to normal during treatment. The patient was definitely MR on the basis of several psychological examinations; however, the fact that she was hospitalized from the age of 4 days to 17 months could be partially responsible for the mental status. (5 refs.) - R. Froelich.

Department of Pediatrics
University of Utrecht
Utrecht, the Netherlands

661 Wong, Paul W. K., Lambert, Ann M., & Komrower, G. M. Tyrosinaemia and tyrosyluria in infancy. Developmental Medicine and Child Neurology, 9(5):551-562, 1967.

Transient tyrosinemia was found in 49 children and tyrosyluria was found in 4 infants when 3,322 infants were tested as part of a screening program. Blood samples were usually obtained between the tenth and twenty-first days, and all samples were tested by paper chromatography. Abnormal tests were repeated and those infants with repeatedly abnormal chromatograms were examined in more detail. All premature infants were excluded from the study. Tyrosinemia was defined as a tyrosine spot as dense or denser than 8 mg/100 ml. The male-female ratio was 63.2:36.8. The tyrosinemic infants had a decreased mean birth-weight ($p < 0.001$). In contrast to 652 normal infants, the tyrosinemic infants were much less breast fed or partly breast fed ($p < 0.001$). Compared to 349 normal infants the tyrosinemic infants received less vitamin-C supplement ($p < 0.05 > 0.02$). Plasma amino-acids were determined and a number of urinary tests done in 8 infants. Three cases had normal plasma tyrosine by the second blood test. Four infants with plasma tyrosine over 10 mg also had tyrosyluria, ketoaciduria, and positive ferric-chloride tests. One infant was described in detail and demonstrated tyrosinemia and tyrosyluria persisting for 93 days. He had abnormal transaminases, alkaline phosphatase, proteinuria, and reducing substances in the urine. He improved but developed a biochemical relapse when milk feedings were started at 87 days of age. (22 refs.) - R. Froelich.

Mental Retardation Unit
Royal Manchester Children's Hospital
Manchester, England

662 Lieberman, Ellin, Shaw, Kenneth N. F., & Donnell, George N. Cystathioninuria in galactosemia and certain types of liver disease. Pediatrics, 40(5):828-833, 1967.

Analysis of urinary amino acid patterns (UAAP) revealed elevated cystathioninuria (CTHU) in 3 untreated Ss (CA, 8 days to 15 months) with galactosemia displaying concomitant hepatomegaly and abnormal liver function tests, non-specific UAAP in 13 Ss with various liver diseases, and a pattern of homocystinuria in 3 Ss. As part of a program attempting to detect metabolic abnormalities associated with MR, UAAP were obtained by 2-dimensional paper chromatography and confirmed on a Beckman 120B amino acid analyzer. The range of CTHU in the galactosemic Ss was from 280 to 500 mg/gm creatinine (normal 80). After 6 weeks to 10 months of dieto-therapy, the UAAP of 2 Ss returned to normal; no followup was available on the third S. One (of 4) S with familial cirrhosis, 1 S with glycogen storage disease, type IV, and 3 (of 4) Ss with hepatoblastoma showed CTHU ranging from 100 to 160 mg/gm creatinine as part of their nonspecific aminoaciduria. Previously, secondary CTHU has been associated with certain neural tumors and with vitamin B_6 deficiency, correctible by pyridoxine. In the galactosemic infants CTHU may have been due to liver damage secondary to high levels of galactose-1-phosphate or related metabolites. No vitamin supplementation was necessary to correct the CTHU. A systemic study of UAAP of Ss with various liver diseases and galactosemia is necessary to clarify the relation of CTHU to galactosemia and liver disease in general. (25 refs.) - A. C. Molnar.

4614 Sunset Boulevard
Los Angeles, California 90027

663 Turner, Brian. Pyridoxine treatment in homocystinuria. Lancet, 2(7526): 1151, 1967. (Letter)

Case material is presented on 2 patients with homocystinuria treated with large doses of pyridoxine for 5 months. A 4-year-old boy previously on a low-protein diet with a plasma-methionine level of 0.273 μmoles/ml was treated with 250 mg of pyridoxine daily, which reduced the methionine level to 0.096 μmoles/ml. Further supplementation of 150 mg cystine/kg/day further lowered the level to 0.071 μmoles/ml. Cyanide-nitroprusside reaction remained positive. A 9-year-old girl with methionine level of 0.69 μmoles/ml suffered an acute psychotic illness accompanied by methionine elevation to 0.126, which returned to 0.052 with recovery and a cystine supplement. Pyridoxine dosages had produced no effect. Maintenance of adequate protein intake and supplementary cystine are apparently necessary for pyridoxine to lower plasma-methionine and increase cystine level. (4 refs.) - J. Snodgrass.

Psychiatric Centre
North Ryde 2113
New South Wales, Australia

664 Gaudier, B., Nuyts, J. P., & Bombart, E. L'homocystinurie. (Homocystinuria.) Medicine Infantile, 74(3):223-236, 1967.

Homocystinuria, an amino acid disorder second to PKU, is historically discussed. The many signs (eye difficulties, MR, peculiar feet and walk, fine blond hair, blue eyes, frequent seizures, cardiovascular complications, and other visceral disorders), in addition to the biochemical and urine tests, render diagnosis easier than most metabolic disorders. With regard to therapy the results seem encouraging. (43 refs.) - C. A. Pepper.

No address

665 Perry, Thomas L., Hansen, Shirley, Tischler, Bluma, Bunting, Rosamund, & Berry, Kenneth. Carnosinemia: A new metabolic disorder associated with neurologic disease and mental defect. New England Journal of Medicine, 277(23):1219-1227, 1967.

Two children with MR and myoclonic seizures excreted carnosine in their urine despite attempts to exclude this compound from the diet; they probably represent a genetically determined carnosinase deficiency. Case 1 was a 3-year-old boy who, except for possible seizures, developed normally to 12 months of age. Thereafter he progressively degenerated to a state of profound MR and immobility. He had 1 sister, who died at 3 months with progressive neurological deterioration. Case 2 was an 8-month-old boy who appeared normal until 2 months of age, when he developed seizures, spasticity, and SMR. Analytical methods included amino acid and imidazole dipeptide determinations of urine, blood plasma, and cerebrospinal fluid by paper chromatography and electrophoresis. Carnosinuria was marked in both children. When meat was excluded from the diet, carnosine decreased but did not disappear. While carnosine was detectable in the fasting plasma of case 1 on all occasions, plasma samples from 120 healthy Ss revealed no detectable carnosine. When chicken meat (an excellent source of anserine and carnosine) was fed to case 1, the carnosine levels in the urine and plasma increased markedly. Increased hemocarnosine levels were also found in the cerebrospinal fluid of case 1. Since his parents were first cousins, the metabolic defect in case 1 is probably genetic. A causal relationship between MR and carnosinase deficiency cannot be concluded from only 2 cases. (28 refs.) - R. Froelich.

Department of Pharmacology
University of British Columbia
Vancouver 8, British Columbia,
Canada

666 Woody, Norman C., Ong, Eng Bee, & Pupene, Mary B. Paths of lysine degradation in patients with hyperlysinemia. Pediatrics, 40(6):986-992, 1967.

Radioactive lysine studies demonstrated a new pathway for lysine degradation in 2 Ss with hyperlysinemia, 1 of whom has MR. After oral loading with C-14 lysine in 2 hyperlysinemic Ss and 2 normal controls, urine was analyzed for amino acids by electrophoresis, ion exchange, and radioactivity. The normal Ss excreted higher quantities of $C^{14}O_2$. The hyperlysinemic Ss excreted N-acetyl-lysine and alpha-keto-amino-caproic acid in greater amounts. Homocituilline and homoarginine were demonstrated in both groups. The most likely site of the metabolic block in the hyperlysinemic Ss is in the formation of saccharopine. The N-acetyl-lysine pathway has not been previously demonstrated in humans and probably plays a minor role in lysine degradation, except when the primary pathways are not available. (17 refs.) - W. A. Hammill.

Tulane Medical School
1430 Tulane Avenue
New Orleans, Louisiana 70112

667 Ebbin, Allan J., Huntley, Carolyn, & Tranquada, Robert E. Symptomatic leucine sensitivity in a mother and daughter. Metabolism, 16(10):926-932, 1967.

A mother with symptomatic leucine-sensitive hypoglycemia persisting into adulthood presented a leucine-sensitive MR child. The mother was a 34-year-old Caucasian with a history of seizures dating from age 8 months. These included frequent attacks of coma, dizziness, and diplopia. Although there was at first no relationship between the seizures

and food intake or time of day, during adulthood she discovered that attacks could be relieved by ingestion of milk and cookies. During two 72-hour fasts she remained asymptomatic but had a drop in blood sugar to 48 mg/100 ml in the first fast and 25 mg/100 ml in the second. She developed a marked hypoglycemic reaction with seizure during the leucine tolerance test. Her daughter first developed seizures at 3 months of age. Her developmental quotient at 27 months of age was 32 (MA, 9 months). She had random blood sugars between 10 and 65 mg per 100 ml with no relationship to time of day or feedings. Physical findings included microcephaly, hyperactive deep tendon reflexes, and bilateral metatarsus varus. Treatment with steriods provided only temporary relief. Tolerance testing included oral glucose, intravenous sodium tolbutamide, oral leucine, and intravenous glucagon. The daughter had frequent symptomatic attacks during periods of hypoglycemia and exhibited a distinct sensitivity to oral leucine. A diet free from or low in leucine improved the postprandial hypoglycemia but not the fasting hypoglycemia. (17 refs.) - R. Froelich.

Communicable Disease Center
Atlanta, Georgia

668 Dancis, Joseph, Hutzler, Joel, Tada, Keiya, Wada, Yoshiro, Morikawa, Toshio, & Arakawa, Tsuneo. Hypervalinemia: A defect in valine transamination. Pediatrics, 39(6):813-817, 1967

Study of valine metabolism in the peripheral leukocytes of a 3-year-old MR Japanese child with hypervalinemia showed a defect in valine transamination. To leukocytes incubated with ^{14}C-labeled amino acids was added sodium alpha-keto isocaproate to trap any radioactive keto acids produced. Control Ss were Japanese. Control and patient leucine metabolisms were similar, but the patient's leukocytes were unable to produce any detectable radioactive keto acids from valine-1-^{14}C. Some $^{14}CO_2$ was produced, however. The patient's leukocytes could transaminate other amino acids. This is strong evidence that there is a specific transaminase for valine in the human. Similarly tested term placental tissue revealed degradation of valine to its keto acid after incubation for 1 hour with labeled valine. This suggests the possibility of making a prenatal diagnosis of hypervalinemia by needle biopsy of the placenta. (13 refs.) - R. Froelich.

New York University School
of Medicine
550 First Avenue
New York City, New York 10016

669 Scriver, Charles R. Experiments of nature involving branch-chain amino acids. Pediatrics, 39(6):811-812, 1967. (Editorial)

Although hypervalinemia has been reported in only 1 infant, the case has provided information on branch-chain aminoacidopathies. Study of the metabolism of valine in the leukocytes of the patient revealed that the block in metabolism is restricted to the first or transamination stage of valine degradation and is specific for valine metabolism. Substrate specificity for the defective transaminase has been demonstrated previously in other branch-chain amino acid catabolisms. (6 refs.) - J. Snodgrass.

No address

670 Colombo, J. P., Burgi, W., Richterich, R., & Rossi, E. Congenital lysine intolerance with periodic ammonia intoxication: A defect in L-lysine degradation. Metabolism, 16(10):910-925, 1967.

A 3-month-old girl with vomiting and episodes of coma since birth had high levels of blood ammonia during the comatous episodes and a sensitivity to lysine caused by an impairment in the degradation of lysine. Severe psychomotor retardation was present. Blood ammonia levels of 500 μg/100 ml were found which could be normalized by a low-protein diet. The EEG was diffusely abnormal but lost the abnormally low voltage and high waves when ammonia levels were normal. Urea cycle enzymes (carbamoyl-phosphate-synthetase, ornithin-carbamoyl transferase, cleavage enzyme, and arginase) and enzymes of ammonia detoxication (glutamate dehydrogenase, glutamate oxalacetate transaminase, glutamate pyruvate transaminase, and glutaminase) had

normal activities when compared to those in control children. Increased lysine and arginine were found among plasma amino acids during normal or high protein intake. During a lysine load, the S became comatose, her blood ammonia rose to 680 μg/100 ml, and her red cell arginase was decreased. A defect in NAD-oxido-reductase (deaminating) found in liver biopsy material was the cause of the hyperlysinemia. Since lysine is a potent competitive inhibitor of arginase, an inhibition of this enzyme could occur at normal substrate levels. (49 refs.) - R. Froelich.

Children's Hospital
University of Berne
Berne, Switzerland

671 Partington, M. W., & Hennen, B. K. E. The lesch-Nyhan syndrome: Self-destructive biting, mental retardation, neurological disorder and hyperuricaemia. Developmental Medicine and Child Neurology, 9 (5):563-572, 1967.

Two brothers with the Lesch-Nyham syndrome, which consists of self-destructive biting, MR, growth retardation, and central nervous system dysfunction, were found to have hyperuricemia. The boys were 3 and 4 years of age and had a stillborn brother and a normal sister. There was a possible family history of gout and kidney stones. The elder boy weighed 3,033 gm at birth and appeared to develop normally except for late development of sitting and crawling. At 18 months he began to bite his fingers and at 2 years he began to bite his lower lip. At 4 years of age he was poorly developed, irritable, spastic, and grossly MR. The EEG was abnormal. The younger brother had a severe gastrointestinal disorder at 2 weeks of age when a colostomy was performed. At 2½ years of age he began to bite his fingers. He was less severely affected than his brother. Both were opisthotonic when stimulated and both had yellow stools. The urine contained large amounts of uric acid, and serum uric acid levels were elevated. No obvious explanation was found for the self-destructive biting except that this is not uncommon in MR children. Their developmental quotients were estimated to be below fifty. A sex-linked recessive type of inheritance was suggested. Uric acid metabolism in this syndrome may be altered. The younger patient's death was indicated in an addendum. (21 refs.) - R. Froelich.

Department of Pediatrics
Queen's University
Kingston, Ontario, Canada

672 Marie, J., Royer, P., & Rappaport, R. Hyperuricemie congenitale avec troubles neurologiques, renaux et sanguins. (Congenital hyperuricemia with neurological, renal and hematologic problems.) Archives Francaises de Pédiatrie, 24(5):501-510, 1967.

A 16-year-old male with psychomotor retardation since 8 months of age exhibited extreme language difficulty, retarded skeletal maturation, MR (IQ 70), choreoathetosis with intention tremor, anemia, and renal function abnormalities. Hyperuricemia and hyperuricosuria was accompanied by a chronic interstitial tubular nephritis with uric acid deposits in the tubules. Macrocytic anemia with a blockage in the production of normoblasts was found in the bone marrow. Moderate hemolysis was observed. Self mutilation, characteristic of this syndrome, was not observed in the S. The mechanism proposed for the neurological damage is high uric acid concentration during the first month of life. Experimental therapy with Probenecid, Beziodarone, orotic acid and allopurinol proves the latter to be the most effective means of treatment. (10 refs.) - W. Asher.

Hôpital des Enfants-Malades
149 rue de Sèvres
75-Paris 15e, France

673 Nyhan, W. L., Pesek, J., Sweetman, L., Carpenter, D. G., & Carter, C. H. Genetics of an X-linked disorder of uric acid metabolism and cerebral function. Pediatric Research, 1(1):5-13, 1967.

A syndrome of MR, spastic cerebral palsy, choreoathetosis, and self-destructive biting in 2 patients was shown by genetic study to be an X-linked recessively transmitted entity. In both cases family pedigree showed relatives with the disorder expressed exclusively in males and transmitted through a carrier female. Both of the patients showed elevated serum uric acid levels. One of the Ss studied extensively with radioactively tagged glycine revealed abnormally high uric acid production. This has not been found to be the etiology in adults suffering from gout, which also has elevated serum uric acid levels. However, analysis of serum and urinary uric acid levels in other family members was unable to detect the abnormality, although there was a suggestion that the heterozygous state could have a milder form of the abnormality. Implication of the X-chromosome as the site of the abnormal gene was established by blood typing for the Xg^a group. It was found that the X-chromosome in kindred

carrying the hyperuricemia gene also carried the Xg(a-) gene. No evidence of linkage with other blood groups could be found. While the symptoms of the disease are variable in severity, they are generally uniformly present and frequently the result of the high uric acid production. (16 refs.) - E. Gaer.

Department of Pediatrics
University of Miami
School of Medicine
Miami, Florida 33100

674 Newman, C. G. H., Wilson, B. D. R., Callaghan, P., & Young, L. Neonatal death associated with isovalericacidaemia. Lancet, 2(7513):439-441, 1967.

A 6-day-old infant who died with isovalericacidemia was believed to be the first such report. Symptoms became apparent on the second day when he refused feeding and vomited severely, suggesting intestinal obstruction. Laparotomy revealed an abnormal peritoneal band. He developed severe metabolic acidosis and coma, followed by death. He had attacks of twitching, and serum calcium was only 4mg/ml. The urine and serum had an odor of short-chain fatty acids. Gas chromatography of the serum demonstrated a peak that was shown to be due to isovaleric acid at a concentration of about 100 mg/100 ml. This amount is about 1,500 times the normal value. The defect in this disease seems to be confined to leucine metabolism. The severe, persistent acidosis may have caused the hypocalcemia. No metabolic defects were found in the parents. Previous reports of isovalericacidemia have been in children with milder forms of the disease. The basic defect is presumed to be in the specific acyl dehydrogenase that metabolizes isovaleryl-coenzyme A. (12 refs.) - R. Froelich.

Children's Department
St. Thomas' Hospital
London S.E., 1, England

675 De Loore, I., & Van Gelderen, H. H. Liver glycogenosis and cataracts in a mentally deficient child. Archives of Diseases in Childhood, 42(224):435-440, 1967.

Increased hepatic glycogen stores were found in spite of normal hepatic enzymes in a girl with hepatomegaly, MR, hypoglycemia, cataracts, and frequent episodes of acidosis. Grandparental consanguinity was the only pertinent family history. Growth and development were normal with the exception of mental function. All biochemical assays were normal except low normal liver phosphorylase activity. This represents a new variant of glycogen storage disease. (10 refs.) - W. A. Hammill.

University Hospital
Leiden, The Netherlands

676 Nelson, Karen, & Hsia, David Yi-Yung. Screening for galactosemia and glucose-6-phosphate dehydrogenase deficiency in newborn infants. Journal of Pediatrics, 71(4):582-584, 1967.

A new fluorescent spot test was successful in screening for galactosemia and glucose-6-phosphate dehydrogenase (G-6-PD) deficiency among newborn infants. The test is based on the conversion of nicotinamide-adenine dinucleotide phosphate to its reduced form. Heel puncture blood samples collected for PKU screening were used. To test the validity of the technique for detection of G-6-PD deficiency, 127 Negro male newborns were tested with both the fluorescent spot test and a dye decolorization test. There were 17 G-6-PD deficient infants, all of whom were detected by both tests. The fluorescent spot test reported G-6-PD deficiency in 2 normal infants. One of 463 Caucasian infants showed a G-6-PD deficiency but later proved to have a normal response. To test the validity of the technique for detection of galactose-1-phosphate uridyl transferase (GalPUT), 19 families with a galactosemic member were tested with the fluorescent spot test and the C14-galactose-1-phosphate conversion procedure. No fluorescence appeared in any of the 22 patients with galactosemia, but it did appear in the one patient with a Duarte variant. All of the parents and siblings of affected patients showed fluorescence. After modification of the technique, the test showed fluorescence for all 733 newborn samples. (2 refs.) - R. Froelich.

Northwestern University
Medical School
Chicago, Illinois

677 Jacobson, David P., & McClain, Edward J. Hypophosphatasia in monozygotic twins. Journal of Bone and Joint Surgery, 49A(2):377-380, 1967.

The occurrence of hypophosphatasia in monozygotic twins may be the result of autosomal recessive inheritance because of evidence of heterozygosity in siblings and 1 parent and the presence of a normal karyotype in the twins. The twins' early infancy appeared normal, but at 15 months of age their teeth began falling out and they were below the

third percentile for weight and length. Their locomotor development was behind their siblings'. Laboratory studies showed hypophosphatasia, elevated serum calcium, and phosphoethanolamine in the urine. Since the coronal sutures of the skull were narrowed, both Ss underwent successful bilateral coronal polyethylene craniotomies. The bones were well mineralized. Other skeletal deformities included pectus carinatum, costochondral beading, and bilateral genu valgum. Slight MR could be secondary to the craniosynostosis. A bilateral supracondylar varus femoral osteotomy was followed by markedly delayed bone healing. Serum alkaline phosphatase of the mother and 2 female siblings was low. The serum alkaline phosphatase of the father was slightly decreased. Leukocyte alkaline phosphatase of the twins and their mother was normal; this could not be explained. (22 refs.) - R. Froelich.

Children's Hospital
DeSoto Street
Pittsburgh, Pennsylvania

678 Scott, C. Ronald, Lagunoff, David, & Trump, Benjamin F. Familial neurovisceral lipidosis. Journal of Pediatrics, 71 (3):357-366, 1967.

An infant with familial neurovisceral lipidosis had the characteristic facies, vacuolated glomerular epithelial cells, and bone deformities and was found to store an acid mucopolysaccharide rather than a glycolipid. He had a grotesque facial appearance with large, low-set ears, flared nose, and marked hypertrophy of the alveolar ridges and maxillary processes. He had wrist, knee, and ankle deformities. Serum alkaline phosphatase was greatly elevated. He fed very poorly, had recurrent respiratory infections, and manifested arrested neurological maturation. He died suddenly at 4 months of age. A female sibling had had a similar appearance and clinical course and died at 6 months of age. Acid mucopolysaccharide was contained within lysosomes in vacuoles of the glomerular visceral epithelium. There are many similarities between this disorder and Hurler's syndrome. They may be genetically distinct and have a common biochemical basis. (18 refs.) - R. Froelich.

Department of Pediatrics
University of Washington
Seattle, Washington

679 Wolff, Otto. Refsum's disease. Developmental Medicine and Child Neurology, 9(4):501-502, 1967. (Annotation)

Refsum's disease is a familial nervous system disease with an abnormality of lipid metabolism. The disorder was described in 1945 and termed "heredopathia atactica polyneuritiformis." The features of the condition include a chronic polyneuropathy, cerebellar ataxia, retinitis pigmentosa, excessive protein in the CSF, nerve deafness, and abnormalities of the skin, heart, and skeleton. The disease is transmitted by a recessive gene. The primary pathological change appears to be in the myelin sheath. Phytanic acid is present in increased amounts in the blood, brain, nerves, and other tissues. Two-thirds of the phytanic acid is present in the triglycride fraction of serum lipids. One of 2 adult patients improved neurologically when given a diet low in phytol, phytanic acid, and chlorophyll. The diet contained no fruit, vegetables, or butter fat and little animal fat. Since this disorder can occur in children of 4 to 7 years of age, the diet should be tried in younger patients to ascertain whether more improvement can be obtained for them. The basic defect in this disease may be a defect in omega-oxidation of fatty acids. (13 refs.) - R. Froelich.

Institute of Child Health
30 Guilford Street
London, W. C. 1
England

680 Jansseune, H., Philippart, M., & Martin, J. J. Sur deux observations de maladie de Niemann-Pick: Formes chroniques à participation nerveuse retardée. (Two observations of Niemann-Pick's disease: Chronic forms with central nervous system involvement and retardation.) Acta Paediatrica Belgica, 21(3):239-252, 1967.

Two cases of Niemann-Pick's disease are classified as the chronic form with MR and nervous system involvement. Biochemical studies confirm the diagnosis and classification after clinical suspicion because of neurological signs and MR. Niemann-Pick's disease is defined as a sphingolipidosis of sphingomyelin because of a defect in sphingomyelinase. Secondary metabolic troubles with gangliosides, cholesterol, and proteins occur. Hepatic and cerebral biopsy in all new cases is recommended. (15 refs.) - W. Asher.

Service de Neurologie
l'Institut Bunge
Berchem-Anvers, Belgium

681 Lowden, J. A., LaRamée, M. A., & Wentworth, P. The subacute form of Niemann-Pick disease. Archives of Neurology, 17(3):230-237, 1967.

Subacute Niemann-Pick disease differs from the juvenile form genetically and biochemically. A female developed normally for 15 months, then deteriorated neurologically, developed hepatosplenomegally and died at age 3 years 10 months. Sphingomyelin concentration was elevated in the spleen and liver. Typical foam cells were abundant in these tissues but rare in the brain where the sphingomyelin content was normal. Two abnormal fatty acids (unidentified) were found in brain sphingomyelin. Total brain myelin was of normal lipid composition but reduced in amount (5 percent of normal). Biochemical analysis of tissues of Ss with Niemann-Pick disease allows separation of the various types as well as differentiation from Gaucher's disease. (29 refs.) - W. A. Hammill.

Hospital for Sick Children
555 University Ave.
Toronto, Canada

682 Schneider, Peter B., & Kennedy, Eugene P. Sphingomyelinase in normal human spleens and in spleens from subjects with Niemann-Pick disease. Journal of Lipid Research, 8(2):202-209, 1967.

An enzyme from human spleen catalyzes the hydrolysis of sphingomyelin with the formation of ceramide and phosphoryl choline. Its pH optimum is between 4.5 and 5.0. The enzyme attacks sphingomyelin and dihydrosphingomyelin but is inactive toward sphingosine phosphoryl choline, o-acetylsphingomyelin, and lecithin. Sphingomyelinase is absent or markedly reduced in spleens from patients with classical and visceral varieties of Niemann-Pick disease but is present in normal amounts in the late infantile type of the disease. Another enzyme, this one magnesium-dependent, capable of catalyzing the cleavage of sphingomyelin, has been detected in the spleens of patients with the classical form of Niemann-Pick disease. (15 refs.) - (Source: Journal of the American Medical Association, 200(12):261, 1967).

Department of Medicine
Beth Israel Hospital
Boston, Massachusetts

683 Oppenheimer, D. R., Norman, R. M., Tingey, A. H., & Aherne, W. A. Histological and chemical findings in juvenile Niemann-Pick disease. Journal of the Neurological Sciences, 5(3):575-588, 1967.

Postmortem examination of 2 cases of Niemann-Pick disease (NPD) with prolonged survival revealed uncharacteristic histological and chemical findings similar to others reported in the literature. Although NPD is usually fatal by age 3, the current cases survived to age 6 and age 20. Both showed progressive MR and motor deterioration. The elder patient, who exhibited major motor seizures, had a twin still living with the same clinical findings. On postmortem examination their viscera, especially spleen and liver, showed storage of sphingomyelin characteristic of NPD, but their brains did not. While cerebral lipidosis, neuronal degeneration, and white matter gliosis were present, each case was variable as to the anatomic locations of the findings. Furthermore, the levels of various lipids stored in the brain and viscera differed in each case. Neither case had the lipid storage in the leptomeninges or capillary endothelium which is generally found in the disease. One case showed degeneration of the posterior spinal roots and columns, which has not previously been described as occurring in NPD. It appears that variations of NPD occur, and that those cases with later onset of signs and symptoms survive longer. (17 refs.) - E. Gaer.

Department of Neuropathology
and Pathology
Radcliffe Infirmary
Oxford, England

684 Heldrich, Fred J., Jr., & Wright, Charles E. Marfan's syndrome: Diagnosis in the neonate. American Journal of Diseases of Children, 114(4):419-423, 1967.

Marfan's syndrome was diagnosed in 2 sisters during the neonatal period on the basis of congenital dislocated hips, joint hyperextensibility of the fingers, equinovarus, pes planus, arachnodactyly, high arched palate, and long great toes. The mother and maternal grandfather had been diagnosed previously as having Marfan's syndrome. Neither S had ocular or cardiovascular abnormalities. Since congenital dislocation of the hips is uncommon (0.7 percent of deliveries), the anomaly should call attention to the possibility of Marfan's syndrome.

The skeletal lesions can often be recognized in the newborn with Marfan's syndrome and thus can facilitate early disgnosis. (22 refs.) - W. A. Hammill.

725 North Wolfe Street
Baltimore, Maryland 21205

685 Bacon, George E., Lowrey, George H., & Carr, Edward A., Jr. Prenatal treatment of cretinism: Preliminary studies of its value in postnatal development. Journal of Pediatrics, 71(5):654-659, 1967.

Administration of thyroid hormone to 4 pregnant women who had previously given birth to at least 1 cretinous child suggested that this treatment may result in improved mentality of the developing cretin child. Between 720 and 1,440 mg/day of desiccated thyroid were given to the 4 mothers near the end of the first trimester of 6 pregnancies. Two women were already taking maintenance doses of thyroid for hypothyroidism. All 4 showed mild signs and symptoms of hyperthyroidism during treatment. Three offspring were euthyroid; 3 were hypothyroid and started on thyroid hormone in the first 2 weeks of life. Intelligence testing showed 1 hypothyroid S had scores superior to those of 2 older hypothyroid siblings (started on thyroid hormone at CA 6 weeks), but his IQ was less than that of his parents. A second hypothyroid S had scores better than that of 1 older sibling and similar to that of a second (both had begun hypothyroid treatment at CA 4 months). His scores were considerably short of those of his parents. Evaluation of the third hypothyroid S was accomplished by a visual-motor function test and appeared normal for his age. The occurrence of 2 of 6 low-birth-weight infants and 3 of 6 hypothyroid infants may be related to the large doses of hormone given the mothers. Euthyroid Ss showed no apparent effects of the hormone. The data are suggestive but not conclusive and further study of prenatal and early postnatal thyroid treatment in cretinism is warranted. (10 refs.) - A. C. Molnar.

University of Michigan
Ann Arbor, Michigan

686 Lupulescu, A., Negoescu, I., Petrovici, A., Nicolae, M., Stoian, M., Balan, M., & Stancu, H. Autoradiography and ultrastructure of the thyroid gland in endemic cretinism. Acta Anatomica, 66(3):321-338, 1967.

Light and electron microscope studies and iodine 131 (^{131}I) radiography of the thyroid glands of 12 cretins revealed abnormal cellular structure and iodine incorporation indicating that a wide range of cytofunctional abnormalities exist in these patients. A dose of ^{131}I was administered to 12 endemic cretins 24 hours before surgery. During the operation thyroid tissue specimens were taken for light microscopic (LM), electron microscopic (EM), and iodine uptake studies. LM studies showed irregular and variable follicle morphology with fibrosis, degeneration, hypofunction, exhaustion atrophy, and embryofetal adenoma formation. EM observations revealed abnormal and irregular composition of the cell's ultramicroscopic components with apparent chemical alterations of the secretions synthesized and stored within them. Autoradiography revealed variable ^{131}I uptake; adenomatous cells took none and parenchymal cells varied in amounts from 0 to normal depending upon the state of cellular integrity. Those cells showing signs of exhaustion atrophy and larger size incorporated less of the isotope than normal ones. The current findings indicate that a variety of distrophic changes occur in these patients as a result of iodine deficiency; this would indicate that it is essential for cellular integrity as well as hormonal synthesis. The cellular exhaustion noted may be a result of chronic thyroid stimulating hormone actions. These changes have been simulated in experiments on rats. Thyroid antibodies in the patients' blood seem to be the result rather than the cause of the pathological changes. Furthermore, while the role of hypothyroidism in cretinism is still unclear, it would appear from clinical and experimental studies that the central nervous system changes result from the effect during fetal life of some goitrogenic noxious factor. (26 refs.) - E. Gaer.

Institute of Endocrinology
4 str. Sandu Aldea
Bucharest, 33, Rumania

687 Fanconi, A., & *Prader, A. Transient congenital idiopathic hypoparathyroidism. Helvetica Paediatrica Acta, 22(4):342-359, 1967.

Transient congenital idiopathic hypoparathyroidism is thought to be caused by a primary congenital hypoplasia or dysplasia of the parathyroid glands, which will develop a secondary hyperplasia to correct the hypocalcemia. In the 8 cases reported, the main clinical signs were generalized convulsions occurring between the second and nineteenth day of life. The serum calcium concentration was between 5 and 7 mg/100 ml, the phosphorus between 9 and 11 mg/100 ml.

Alkaline phosphatase was normal. There were no signs of rickets or renal failure. There was a positive and reversible response of the serum calcium and phosphorus concentrations to repeated i.m. administration of parathyroid extract. Vitamin D therapy corrected the hypocalcemia within 1 to 4 weeks, and no further convulsions were observed. There was no relapse when the treatment was stopped after a few weeks. The further course of these patients is benign. They are all normally developed and healthy, except one who is MR. The only trophic disturbance is enamel hypoplasia of the deciduous teeth. None of the mothers of these patients shows any signs of hyperparathyroidism. The transient congenital hypoparathyroidism has to be distinguished from other types of infantile hypocalcemia, such as simple neonatal hypocalcemia, persistent congenital hypoparathyroidism, primary congenital hypomagnesemia, and hypocalcemic vitamin D deficiency rickets. (17 refs.) - (Edited author summary).

*Children's Hospital
University of Zurich
Zurich, Switzerland

688 Kenny, Frederic M., Iturzaeta, Nenita, Preeyasombat, Chawalit, Taylor, Floyd H., & Migeon, Claude J. Cortisol production rate. VII. Hypothyroidism and hyperthyroidism in infants and children. Journal of Clinical Endocrinology and Metabolism, 27 (11):1616-1622, 1967.

When an in vivo radioisotope dilution test was used, the cortisol production rate (CPR) and urinary 17-hydroxycorticosteroid (17-OHCS) excretion rate were measured in 25 infants and children with hypo- or hyperthyroidism and found to vary. Inconclusive statistical evidence was found for any significant difference in the CPR and 17-OHCS excretion rate for hypothyroids under 5 years of age and for normals. Also no difference was found for the CPR of hyperthyroids over 5 compared to controls. The other values found in hypo- and hyperthyroid children over age 5 were significantly different from their controls. The mean 17-OHCS excretion and CPR in hypothyroids over 5 were lower than normal controls and the mean 17-OHCS excretion level in hyperthyroids was higher than controls. Possibly, circadian rhythm has some effect on the amount of substances found particularly in those patients over 5 years of age. Furthermore, the increased oxidation of 11-keto metabolites in hyperthyroidism would result in less ACTH suppressing substances to be available with resultant increased CPR. The opposite would be the case in hypothyroidism. The normal CPR and 17-OHCS excretion levels in patients under 5 years of age could possibly be explained on the basis of the shorter duration of their disease as well as poorly developed circadian rhythm at their age. (11 refs.) - E. Gaer.

University of Pittsburgh
School of Medicine
Pittsburgh, Pennsylvania

689 Aperia, A., *Broberger, O., Bergstrand, C. G., & Zetterström, R. Renal response to intravenous phosphate load in idiopathic hypoparathyroidism and pseudohypoparathyroidism. Acta Paediatrica Scandinavica, 56(4):357-364, 1967.

Since the renal phosphate threshold was abnormally high in 3 patients with idiopathic hypoparathyroidism and 2 MR siblings with pseudohypoparathyroidism, the determination of the threshold may be a valuable diagnostic tool for these disorders. Patients were divided into 5 groups: 3 with idiopathic hypoparathyroidism, 2 with pseudohypoparathyroidism, 3 with "renal phosphate leakage", 5 normal children, and a 2-year-old brother of a patient with idiopathic hypoparathyroidism. Evaluation included the Ellsworth-Howard test and determination of the theoretical renal phosphate threshold before and after administration of parathyroid hormone. The threshold of the normal children ranged from 2.7 to 4.2 mg/100 ml. The "renal phosphate leakage" group had thresholds lower than normal. The sibling of the patient with idiopathic hypoparathyroidism had an elevated renal threshold,which suggests that this test can detect subclinical cases of this disease when they otherwise show a normal blood chemistry and no tetanic symptoms. Measurement of renal phosphate threshold after intravenous parathyroid hormone was a more efficient diagnostic test than the Ellsworth-Howard test when considering defects of renal tubular handling of phosphate. (11 refs.) - R. Froelich.

*Department of Pediatrics
Kronprinsessan Lovisas
Barnsjukhus
Stockholm K, Sweden

690 Curi, Joseph F. J., Vanucci, Robert C., *Grossman, Herman, & New, Maria. Elevated serum gonadotrophins in Silver's syndrome. American Journal of Diseases of Children, 114(6):658-661, 1967.

A 17-month-old girl is described as the first patient with Silver's syndrome to have elevated serum follicle stimulating hormone (FSH) and luteinizing hormone (LH) levels, the second patient with the syndrome

to have congenital heart disease, and the youngest reported to have elevated urinary gonadotrophins. The S was born to a 25-year-old gravida 1 by spontaneous breech delivery following a full-term gestation complicated in the fifth month by a kidney infection. She was treated with sulfa therapy, and amphetamines were prescribed for weight control. Birth weight was 1,800 gm and total length was 43 cm. Developmentally the child progressed normally. Intellectual development was unimpaired. Presented at 17 months for evaluation of shortness of stature, the S had a triangular facies, weight of 6,100 gm, height of 71 cm, and a head circumference of 43 cm. Roentgenologic findings revealed hypoplasia of the middle phalanx of the fifth digit resulting in bilateral shortness and incurving, hemihypertrophy of the right kidney, an enlarged heart in the transverse diameter, and increased pulmonary artery vasculature. Gonadotrophin assays showed: (1) urinary FSH levels at 5 rat units (normal 0), (2) serum radio-immuno-assay of FSH at 39.2 mouse units (normal 11.2 to 16.8), (3) serum LH levels at 34.0 mouse units (normal 15 to 20). No early sexual development was observed, but premature estrogenization of the vaginal mucosa was present. Auscultation (a 2/6 systolic murmur heard along the left parasternal border), electrocardiography, and a cardiac series indicated that an atrial septal defect was present. (9 refs.) - A. C. Molnar.

*525 E. 68th Street
New York, New York 10021

691 Moossy, John. The neuropathology of Cockayne's syndrome. Journal of Neuropathology and Experimental Neurology, 26(4):654-660, 1967.

Cockayne's syndrome consists of dwarfism, progerioid facies, photosensitive dermatitis, optic atrophy, MR, and progressive neurologic deterioration beginning in the second year of life. Death usually occurs in the second or third decade. Genetic studies suggest autosomal recessive inheritance. Pathologic study revealed thickened meninges, cortical atrophy, intracapillary encrustations, pericapillary basophilic concretions, diffuse neuron loss, patchy demyelination without inflammatory reaction, mineralization (iron, not calcium) of small arterioles, and subependymal gliosis. Large amounts of lipofuscin were present in all cells of the subcortical regions, but not in the cortex. These findings suggest an accelerated aging process primarily involving the central nervous system. The features of progeria also suggest rapid aging. Cockayne's syndrome is probably a genetic inborn error of metabolism, although the specific enzyme has not been identified. (14 refs.) - W. A. Hammill.

Department of Pathology
University of Pittsburgh School
of Medicine
Pittsburgh, Pennsylvania 15213

692 Prader, A., Zachmann, M., Poley, J. R., Illig, R., & Szeky, J. Long-term treatment with human growth hormone (Raben) in small doses. Helvetica Paediatrica Acta, 22(5):423-440, 1967.

Treating 18 hypopituitary dwarfs (CA 2-17 yrs) with physiological doses of human growth hormone (HGH) resulted in growth acceleration in 10 patients and the development of antibodies against HGH in the other 8 patients. Length of treatment ranged from 6 months to 6 years. Etiological groupings included idiopathic (2) and hereditary (3) hypopituitarism, birth trauma or asphyxia (9), and craniopharyngeoma (3). The extracted HGH (Raben) containing approximately 1.3 USP U/mg was given intramuscularly twice weekly in uniform dosage of 5 mg/m^2 of surface area. The mean growth velocity before treatment was 27.3 mm/year. Although it was 58.8 mm/year during the total treatment, the greatest increase in mean growth velocity occurred during the early part of treatment. Height age increased less than skeletal maturation, and skinfold thickness decreased markedly during the first months of treatment. The decrease in adipose tissue along with the constancy of weight age/height age ratio indicated an increase in muscle mass. The 8 patients who were unsuccessfully treated appeared to have some response at first, but within a few months a fast decline of growth velocity was evident. Specific antibodies against HGH were shown by hemagglutination techniques. (34 refs.) - R. Froelich.

Universitätskinderklinik Zürich
Zurich, Switzerland

693 De Barsy, A. M., Moens, E., & Dierckx, L. Dwarfism, oligophrenia, and elastic-tissue hypoplasia: A new syndrome? Lancet, 2(7505):47, 1967. (Letter)

Case material is presented on a 15-month-old girl with a dysmorphic appearance and retardation in height, weight, and psychomotor

299-809 O - 68 - 4

development. The characteristics seem distinct from the progeria and genitodysplasic gerodermia syndromes. (No refs.) - J. Snodgrass.

Born-Bunge Foundation
59 Filip Williotstraat
Berchem, Antwerp, Belgium

New growths

694 Brown, Joe R. Cerebellar tumors in children. Mayo Clinic Proceedings, 42 (8):511-516, 1967.

The signs and symptoms of cerebellar tumors (CT) in children are dependent upon their size and anatomic location and can be differentially diagnosed from other childhood neurologic diseases. By the simplest anatomical systems, the cerebellum can be subdivided into an anterior and posterior midline portion (AMP) (PMP) and a right and left lateral portion (RLP) (LLP), each of which will give signs and symptoms characteristic for lesions of that particular area. Ataxia is a common symptom in CT but must be tested and evaluated by special techniques to compensate for the age and degree of maturation of the child. Signs and symptoms of increased intracranial pressure (ICP) such as headaches, projectile vomiting, bulging fontanelles, enlargement of the head, papilledema, bradycardia, hypertension, reduced respiratory rate, anorexia, apathy, and signs of medullary compression are frequent in early cases and are due to blockage of the outflow of ventricular fluid. Seizures are uncommon. PMP tumors will first show signs of ICP followed by focal signs of truncal ataxia and nystagmus in all positions of gaze. Medulloblastoma and ependymona are most common and often require post-operative radiation, since total surgical removal is rare. AMP tumors are rare and will first show signs of ICP and then focal signs of gait ataxia. RLP and LLP tumors will first show focal signs of limb ataxia, hypotonia, incoordination of skilled movement, and nystagmus and later signs of ICP. Pyramidal trait signs and cranial nerve palsies are common in posterior fossa lesions, but sensory signs are not. CT can be differentially diagnosed from other childhood ataxias, cerebellar extradural hematoma, Dandy-Walker syndrome, and Arnold-Chiari malformation by history, physical findings, and ancillary laboratory and radiological tests. (17 refs.) - E. Gaer.

No address

695 Priebe, Cedric J., Jr., & *Clatworthy, H. William, Jr. Neuroblastoma. Archives of Surgery, 95(4):538-545; discussion, 545, 1967.

In a retrospective study of 90 histologically confirmed cases of neuroblastoma in children, 30 percent were cured. Survival was closely related to the age of the child at the time of diagnosis and to the site and extent of the tumor. Regionally contained tumor in a young infant treated by excisional surgery followed by irradiation resulted in an excellent cure rate; however, with disseminated disease prognosis was dismal unless metastases were limited to the liver or to diffuse subcutaneous nodules. The treatment of neuroblastoma with partial or complete safe excisional surgery and x-ray therapy, with a tumor dose of 2,000 to 2,500 roentgens, offered the best hope of cure. The addition of chemotherapy with cyclophosphamide prolonged survival time but did not increase the overall cure rate. Cyclophosphamide should be reserved for palliative treatment in disseminated disease, except for its use in controlled prospective study groups. (15 refs.) - Source: Journal of the American Medical Association, 202(1):183, 1967.

* Department of Surgery
Children's Hospital
Columbus, Ohio

696 Abrisqueta, J. A. Sturge-Weber syndrome with normal karyotype. British Medical Journal, 2(5553):702, 1967. (Letter)

Despite symptoms and signs typical of Sturge-Weber syndrome, an MR 10-year-old boy (134.5 cm tall) revealed no chromosome abnormalities. His mother had albuminuria during pregnancy, had delivery complicated by placenta previa, and died at age 37 of hypertensive syndrome. The boy had right-sided hemiplegia diagnosed at 2 months and did not walk until 5 years; IQ is 52. Dermatoglyphics showed 2 axial triradii on the right palm and 1 on the left; the finger prints revealed 7 ulnar loops and 3 whorls. (6 refs.) - J. Snodgrass.

Laboratorio de Genética
Madrid, Spain

697 Lagos, Jorge C., & Gomez, Manuel R. Tuberous sclerosis: Reappraisal of a clinical entity. Mayo Clinic Proceedings, 42(1):26-49, 1967.

Of 71 patients with tuberous sclerosis seen at the Mayo Clinic over a 30-year period, 43

were MR and had a history of seizures. The diagnosis was made when 1 or more of the following were present: adenoma sebaceum, phakoma or retinal tumor, MR and/or epilepsy and a close relative with tuberous sclerosis or epilepsy, and X-ray evidence of circumscribed intracranial calcifications. There was an equal sex distribution and all were white except for 1 Negro. Their ages ranged from 5 months to 50 years. The estimated intelligence of 67 patients found 43 to be MR and 26 to be of normal intelligence. Seizures were present in 66 patients. Other abnormalities included retinal phakoma in 34, adenoma sebaceum in 59, shagreen patches in 15, periungual fibromas in 12, achromic patches in 11, subcutaneous nodules in 7, areas of hyperpigmentation in 7, cafe-au-lait spots in 5, an electroencephalographic abnormality in 55, and intracranial calcification in 35 patients. Intracranial calcifications were more frequently found in patients of normal intelligence. Sixteen MR patients received psychometrics (Cattell, Wechsler-Bellvue, Stanford-Binet or WISC) with IQs ranging from 25 to 80. Six of these had major seizures. Adenoma sebaceum or retinal or visceral tumors were never found as the sole manifestation of tuberous sclerosis. This study does not support the time-honored view that most patients with tuberous sclerosis have MR. (42 refs.) - R. Froelich.

Mayo Graduate School of Medicine
University of Minnesota
Rochester, Minnesota 55901

Unknown prenatal influence

698 Spiro, Alfred J., Fogelson, M. Harold, & Goldberg, Albert C. Microcephaly and mental subnormality in chronic progressive spinal muscular atrophy of childhood. Developmental Medicine and Child Neurology, 9(5):594-601, 1967.

Examination of 3 brothers with chronic progressive spinal muscular atrophy revealed 2 atypical findings - microcephaly and MR. Case 1 (8 years old) had insidiously progressive muscle weakness from age 1. His developmental milestones were delayed, and he was evaluated for emotional lability and speech difficulties at age 4. He was definitely MR. Electromyography (EMG) findings and muscle biopsy were consistent with a neuropathy. Case 2 (3 years old) had a peculiar gait and proximal muscle weakness. His intelligence was thought to be below normal. Case 3 (10 years old) was evaluated because the entire family was being examined for muscle disease. He was obviously MR and could not walk or stand alone. At 6 years of age he was institutionalized and showed more rapid deterioration than his younger brothers. The pattern of muscular atrophy in the younger sibling consisted of proximal weakness, while the older had distal weakness. The EMG findings in all 3 and the muscle biopsy performed on two were consistent with a neuropathy. Although the mode of inheritance in this family remains uncertain, only the males seem to be affected. Four siblings, an MR paternal aunt, and a schizophrenic great uncle were unaffected. Case 1 and 2 had increased levels of creatine phosphokinase. (20 refs.) - R. Froelich.

Department of Neurology
Albert Einstein College
of Medicine
New York, New York 10461

699 Yamamura, Michio, Yonekura, Ikuo, Hirano, Chisato, Ootsuki, Nobuko, & Hirano, Takashi. A report of two cases of siblings with Laurence-Moon-Biedl syndrome. Japanese Journal of Child Psychiatry, 8(3): 295-302, 1967.

Two siblings (a 19-year-old male and a 17-year-old female) revealed typical signs of the Laurence-Moon-Biedl syndrome. No intelligence tests were given because of their severe loss in visual activity; however, it was assumed that the male S was moderately MR and the female S was mildly MR. Symptoms typical of retinitis pigmentosa were present in both Ss. The male S exhibited psychomotor irritability, confusion, insomnia, monologue speech, and polydactyly of the right hand and foot. His obesity was first noted at the age of 10. In the female S obesity was noticed at age 12, along with abnormalities of the right fingers and toes. Ss displayed a tendency to low voltage fast waves in their EEGs, low renal function, and low sex hormone secretion. Hypophyseoprius was observed in the male. (13 refs.) - L. Clevenger.

Gifu Mental Hospital
3967, Hino
Gifu, Japan

700 McLoughlin, T. G., & Shanklin, D. R. Pathology of Laurence-Moon-Bardet-Biedl syndrome. Journal of Pathology and Bacteriology, 93(1):65-79, 1967.

Necropsy data from 2 brothers with Laurence-Moon-Bardet-Biedl syndrome showed a broad spectrum of abnormalities but no lesions of the pituitary, hypothalamus, or brain that could account for some of the manifestations. The syndrome has a broad spectrum of clinical manifestations including retinal pigment abnormalities, obesity, MR, genital hypoplasia, and polydactyly. The 2 cases in this study had 1 brother with mild systemic hypertension in an otherwise normal family. One of the Ss (Stanford-Binet IQ of 31) died after cardiac surgery at 5 years of age. He also had eye defects and urinary abnormalities. The other was a 3-month-old infant with severe involvement of the heart and liver and an omphalocele. Both had polydactyly, syndactly, acrocephaly, and cardiac defects. Necropsy findings included an increase of basophils in the pituitary, biliary atresia, small phallus, and asymmetry of the brain in the older S and hypergyria and an angiomatoid malformation of the brain in the other. A review of the necropsy data from 16 previously reported cases revealed a high incidence of renal and congenital cardiac malformations. The hypogonadism found in the male could be secondary to a pituitary defect caused by chronic renal disease. (37 refs.) - R. Froelich.

Departments of Pediatrics
and Pathology
University of Florida
Gainsville, Florida

701 Hamilton, William. Diencephalic syndromes of infancy and childhood. Developmental Medicine and Child Neurology, 9(4):497-499, 1967. (Annotation)

The 3 diencephalic syndromes of infancy are conjectured to represent disturbed interplay of hypothalamic releasing factors. One syndrome consists of emaciation which is usually due to a tumor in the region of the third ventricle but may be caused by a midline cerebellar astrocytoma. Variable features include hypoglycemia, excessive sweating, polyuria, dysthermia, tremor, nystagmus, optic atrophy, and large hands and feet. Growth hormone levels can be elevated. A second syndrome consists of congenital generalized lipodystrophy, increased growth rate, acromegaly, hepatomegaly, dry coarse skin, and hypertrichosis. It is an autosomal recessive condition. Growth hormone and corticotrophin are increased. This syndrome can be acquired from viral infection or cerebral birth injury. A third syndrome consists of cerebral gigantism, a large skull without hydrocephalus, MR, clumsiness, and other abnormalities. Clinical features begin in the first 2 years of life, and after 4 years of age the growth rate slows and runs parallel to the normal curve. Familial dysautonomia and leprechaunism may be variants of the diencephalic syndrome. (19 refs.) - R. Froelich.

Department of Child Health
The University
Glasgow, W. 2., Scotland

702 Harper, J. R. Infantile spasms associated with cerebral agyria. Developmental Medicine and Child Neurology, 9(4): 460-463, 1967.

A SMR male infant who developed infantile spasms at 3½ months of age and died at 6 months of age had an almost complete absence of the cerebral gyri. The infant appeared normal until 3½ months of age when flexor infantile spasms began to occur up to 12 times daily. At 4½ months he was inert, apathetic, and unresponsive to auditory or visual stimuli. Three EEG's showed hypsarrhythmia. The spasms were classified as cryptogenic, since their origin could not be determined. Death resulted from pneumonia. At autopsy there was striking generalized symmetrical reduction in size of the cerebral hemispheres, particularly over the superior aspect. Even though cerebral agyria is the most common gross cerebral anomaly found with the infantile spasm syndrome, only 40 autopsies have been reported in the literature. Cerebral agyria has never been reported to occur more than once in a family. (16 refs.) - R. Froelich.

Warwick Hospital
Lakin Road, Warwick

703 Monahan, Robert Hugh, Hill, Charlotte Weeks, & Venters, Homer D. Multiple choristomas, convulsions and mental retardation as a new neurocutaneous syndrome. American Journal of Ophthalmology, 64(3,II):529-532, 1967.

A 4-year-old female with MR, seizures, and sebaceous nevi of Jadassohn of the midline face differed from 2 previously reported cases in that the current patient had multiple conjunctival and dermal choristomas as well as mesodermal involvement. Physical

examination revealed multiple cranial, ocular, dental, and dermal abnormalities as well as blindness, deafness, inability to communicate, SMR, motor retardation, malnourishment, and coarctation of the aorta. Microscopic examination of biopsies taken from masses on the conjunctiva and skin revealed choristomas and hamartomas characterized by hyperplastic sebaceous glands, atypical apocrine glands, immature hair follicles, abnormal keratosis or hyperkeratosis, and a slight increase in subepithelial vascularity. Mesodermal lesions consisting of aortic coarctation, congenital corectopia of the irises, and a choroidal coloboma of the right eye were also found. Since the conjunctival, dermal, and mesodermal lesions have not been previously reported, it is possible that the current patient represents a new syndrome. Furthermore, since the basic tissue pathology consists of anomalous differentiation of primordial cells and misplacement of the structures from their normal sites, the term choristoma is recommended when classifying this type of neurocutaneous syndrome. (6 refs.) - E. Gaer.

1573 University Avenue
St. Paul, Minnesota 55104

704 Watts, James W., & Miller, Meredith H. The surgical treatment of craniosynostosis. Clinical Proceedings of Children's Hospital of the District of Columbia, 23(3): 83-87, 1967.

Two brothers with craniosynostosis illustrate the problem of determining surgical treatment. Since craniosynostosis can cause MR, the critical problem is to decide which ones would ultimately develop MR if surgery were not performed. The decision is simple when there is evidence of increased intracranial pressure such as exophthalmos, visual impairment, or papilloedema. Such findings are clear indications of surgery. Patient 1 was a 5¼-year-old who had developed normally and revealed no physical, mental, or neurological impairment. Surgery was not recommended. His 11-month-old brother had a closed sagittal suture and readily visible coronal and longitudinal sutures. Because he still had to develop through a critical period a parasagittal craniectomy was performed according to the description of Anderson and Geiger. Polyethylene film was sutured to the margin of the craniectomy to prevent fusion. This operation should be done early and at least during the first 2 years of life. (6 refs.) - R. Froelich.

George Washington University
Hospital
Washington, D. C.

705 Milunsky, Aubrey, Cowie, Valerie A., & Donoghue, Elaine C. Cerebral gigantism in childhood. Pediatrics, 40(3,I):345-402, 1967.

Two girls with cerebral gigantism who manifested gigantism, MR, a non-progressive neurological disorder, typical facies, and other abnormalities are described. Case 1 was suspected of being MR at 3 months of age and at age 3 years had an IQ of 65. She exceeded the 97th percentile in height at 5 years of age. Other abnormalities included kyphoscoliosis, heart murmur, awkwardness, large, broad limbs, and some dermatoglyphic deviations. Case 2 was suspected of having MR at 3 years of age and had an IQ of 65 at about that time. Other findings included an ill-temper, short, broad fingers, large skull, clumsiness, and broad based gait. Both had an abnormal EEG and normal karyotype. This disorder is characterized by gigantism, macrocrania, prognathism, MR, dolichocephaly, high arched palate, characteristic facies with frontal bossing, hypertelorism, antimongoloid palpebral fissures, and some neurological disorder. Of 14 cases reported in the literature, 2 cases without MR have been described. Pneumoencephalography in 10 of 11 cases showed dilated ventricles. Growth hormone levels were normal but failed to rise during marked hypoglycemia. The pathogenesis may involve a developmental defect that occurs during embryogenesis. (17 refs.) - R. Froelich.

Department of Pediatrics
Tufts-New England Medical Center
Boston, Massachusetts, 02111

706 Cohen, Michael E., Rosenthal, Alan D., & Matson, Donald D. Neurological abnormalities in achondroplastic children. Journal of Pediatrics, 71(3):367-376, 1967.

Of 15 children with achondroplasia, 13 had a head size over the 97th percentile, 6 had moderate ventricular enlargements, 1 was MR, and 2 had seizures. Two infants had suspected MR because of delayed acquisition of motor skills but were ultimately found to have normal intelligence. There were 10 males and 5 females between the ages of 2 and 15 months. Two patients received a ventriculoatrial shunt, and 1 S had an excision of subdural membranes. Most of the neurological abnormalities could be attributed to bony changes of the skull and spine. Although head size is large, the head growth curves parallel the normal rate of growth at higher values. When true hydrocephalus does occur in this syndrome, it is probably caused by obstruction at the level of the foramen magnum. Severe neurological or intellectual

impairment should suggest additional pathology other than achondroplasia. (21 refs.) - R. Froelich.

Department of Neurology and Neurosurgery
Children's Hospital Medical Center
Boston, Massachusetts

707 Berg, J. M., Smith, G. F., Ridler, M. A. C., McCreary, B. D., Faunch, Janet A., Farnham, Faith N., & Allen, Mary L. De Lange syndrome: Report of a case with an unusual karyotype. Journal of Medical Genetics, 4(3):184-189, 1967.

The karyotype of a 6-year-old West Indian boy with a clinical diagnosis of de Lange syndrome showed an atypical metacentric 6-12 group chromosome thought to be a No. 9. His phenotypically normal father had a similar karyotype. The propositus demonstrated a malformation of the right hand, peculiar facies, poor physical development and severe MR (estimated IQ = 25). Other findings included a small head, low hairline, confluent eyebrows, long eyelashes, broad nose, thin lips, small low set ears, moderate micrognathia, undescended testes and a tendency to syndactyly. Dermatoglyphics were consistent with de Lange syndrome. Leukocyte and fibroblast cultures were used for chromosome studies. Laboratory studies revealed no significant abnormalities. Chromosomal studies have been done on approximately one-half of the 150 diagnosed cases of de Lange syndrome, but only a few demonstrated an abnormal karyotype. The finding of a normal karyotype in the majority appears to exclude specific chromosomal aberration as a cause of de Lange syndrome. However, the various chromosomal anomalies found does present an interesting question. A number of possible explanations can account for the similar karyotypes of the father and son in this study. (17 refs.) - R. Froelich.

Kennedy-Galton Centre
Harperbury Hospital
St. Albans, Hertsfordshire
England

708 Huang, Chin-Chiang, Emanuel, Irvin, Huang, Shih-Wen, & Chen, Ting-Yao. Two cases of the de Lange syndrome in Chinese infants. Journal of Pediatrics, 71 (2):251-254, 1967.

Two Chinese infants exhibiting most of the typical features of the de Lange syndrome have demonstrated that the striking resemblance of patients with this syndrome transcends racial origins. The infants, both female, were evaluated during early infancy. One died at 34 days of age and the other was living at 146 days of age. Characteristics present in the Ss included an upturned nose, confluent eyebrows, long lashes, microbrachycephaly, downturned mouth, hirsutism, hypoplastic nipples and umbilicus, SMR, a low-pitched cry, thin lips, small mandible, blue sclerae, cardiac anomaly, hypoplastic external genitalia, skeletal anomalies, and a small triangular "beak" between the upper lip and gum. Birth weights were 1,050 and 2,000 gm. Autopsy findings included hypoplastic thymus, lungs, liver, and kidneys, patent ductus arteriosus, fused adrenals, and renal cysts. There were 46 chromosomes in 34 of the 42 cells counted in 1 S and in 27 of the 37 cells counted in the other S. There was no consistent aberration in the nonmodal cells; therefore, no support can be given to the proposal that a chromosomal aberration is the cause of this disorder. (17 refs.) - R. Froelich.

Department of Preventive Medicine
University of Washington
Seattle, Washington 98105

709 Noé, Ossey, & Hammond, Jack. De Lange's Amsterdam dwarfism: Case report and etiological considerations. American Journal of Mental Deficiency, 71(6): 994-1003, 1967.

The case of a 9-year-old Negro MR female with symptoms of de Lange's Amsterdam dwarfism is presented along with the proposal that this syndrome is caused by an immature ovum. The child was small at birth (43.5 cm; 1,850 gm) and had a malformed head, missing right fourth finger, partially webbed third and fifth fingers, bushy eyebrows, a saddle-shaped nosebridge, low-set ears, hirsutism of spine and face, short extremities, and other abnormalities. Karyotype was normal. MR became obvious at 5 months of age and at 22 months the child had an IQ of 30. At 9 years of age she has made no intellectual progress and is still dwarfish. Maturation of ossification centers is retarded. A review of the literature shows 154 cases on record. Only a few cases of the syndrome in non-white infants have been reported. Since the chromosomal aberrations found in 20 of the 77 cytogenetic investigations conducted were neither constant nor uniform, no definite etiology can be proposed. On the assumption that the factor producing manifold congenital defects

and immaturity of tissues and organs must be operative prior to the differential segregation of ooplasmic material, underripeness of the ovum is postulated as the most probable cause. (85 refs.) - R. Froelich.

*Willowbrook State School
Staten Island, New York 10314

710 Griffith, John F, Ojemann, Robert G., Bonomo, Gregory, Halldorsson, S., & *Connelly, John P. Hydrocephalus: Medical and surgical considerations. Clinical Pediatrics, 6(8):494-500, 1967.

Medical and surgical considerations for the management of hydrocephalus were discussed along with case presentation of a 27-month-old male infant at the Massachusetts General Hospital. The S had cranial circumference in the 97th percentile and was treated unsuccessfully for 5 months with Diamox (acetazolamide) 50 mg/kg/day in 3 divided doses. A diagnosis of communicating hydrocephalus was made from pneumoencephalogram. Physical examination at the second hospital admission revealed progressively enlarging cranial sutures and head circumference. His speech was limited to single words. The boy would laugh when played with but was very irritable. Fundoscopic examination was normal. The patient had relief of the elevated intracranial pressure following insertion of a Hakim valve during a ventriculovenous shunting surgical procedure. Early diagnosis of hydrocephalus before irreparable central nervous system damage occurs is urged. In 30-40 percent of patients, spontaneous arrest of the process occurs, usually after irreversible damage. In slowly progressing cases, high doses of acetazolamide may be useful. Surgical insertion of shunting apparatus is effective but is too often complicated by infection (6-40 percent of cases) and obstruction. Use of the Hakim valve promises to be a significant improvement over previous methods. (14 refs.) - W. Asher.

*Children's Service,
Massachusetts General Hospital
Boston, Massachusetts 02114

711 Johnson, Richard T., Johnson, Kenneth P., & Edmonds, C. Jill. Virus-induced hydrocephalus: Development of aqueductal stenosis in hamsters after mumps infection. Science, 157(3792):1066-1067, 1967.

Intracerebral inoculation of mumps virus caused noninflammatory stenosis or occlusion of the aqueduct of Sylvius resulting in hydrocephalus in suckling hamsters. The infection was inapparent for 2 to 3 weeks, but then hydrocephalus developed over a period of months. Hamsters were inoculated at 1 to 4 days of age and were sacrificed at intervals to determine virus content of the brain and to have other studies. Fluorescent antibody staining was done using guinea pig antiserum. Control animals were inoculated with virus pretreated with antiserum. The virus began to grow after 2 days and was detectable up to 9 days. At 9 days neutralizing antibody became detectable. The most prominent reaction was perivascular inflammation of mononuclear cells, which began at the fourth day and continued to about the fifteenth day. Virus antigen was limited to ependymal cells. Of 82 surviving hamsters, 78 developed clinical signs of hydrocephalus between 2 and 9 weeks of age. Occlusions of the aqueduct occurred in the rostral portion. Control animals did not develop hydrocephalus, histological changes, or detectable antigen. Other strains of mumps virus also caused hydrocephalus. This study shows that inapparent infection can result in pathological changes which result in hydrocephalus. (4 refs.) - R. Froelich.

Cleveland Metropolitan General
Hospital
Cleveland, Ohio 44100

712 Naggan, Lechaim, & *MacMahon, Brian. Ethnic differences in the prevalence of anencephaly and spina bifida in Boston, Massachusetts. New England Journal of Medicine, 277(21):1119-1123, 1967.

All cases of anencephaly or spina bifida born in several hospitals in Boston were studied for ethnic background, socioeconomic background, and parity; the study showed higher prevalence among Irish and Canadians and among parents of lower socioeconomic status. The total number of live born or still birth infants was 311,437. A total of 698 cases of anencephaly or spina bifida was ascertained, which was a prevalence of 2.24 per 1,000 births. Both disorders had a preponderance of females (but especially so for anencephalics). The rate for Protestants and Catholics was 3 and 4 times higher than for Jews. The prevalence among Catholics was still higher when parents of known Irish descent were not included. The rate of 3.1 per 1,000 births among the Irish was not significantly different if 1 or 2 parents were Irish but was higher if the mother was born in Ireland. The rate reported in Ireland is 8.7 per 1,000 births. Many of the Canadian-born parents were of French descent. The higher rate with

decreasing socioeconomic status remained after standardization for ethnic group distribution. The socioeconomic trend was seen in all ethnic groups except the Jewish. No association with maternal age was found, but the rate was increased among mothers with 5 or more children. This association was independent of ethnic groups. The rate among Italians was low. (17 refs.) - R. Froelich.

*Department of Epidemiology
Harvard School of Public Health
1 Shattuck Street
Boston, Massachusetts 02115

713 Laurence, K. M. The genetics of spina bifida occulta. Developmental Medicine and Child Neurology, 9(5):645-646, 1967. (Annotation)

The belief in a genetic etiology for spina bifida cystica was originated by Schamburow in a 1932 study which demonstrated an increase in the prevalence of spina bifida occulta and other defects in parents and relations. Others deduced that spina bifida occulta and spina bifida cystica are etiologically related because the prevalence of spina bifida occulta and rib defects is 4 times greater among parents (21 percent) than in the general population (4.5 percent). An autosomal recessive mode of inheritance has been proposed but is not supported by recent evidence. Twin studies show that monozygous co-twins of index patients are not always found to be affected. Results suggest that this group of malformations is due to polygenically determined predisposition interacting with environmental factors. A large twin study is recommended for confirmation. (18 refs.) - W. Asher.

Department of Child Health
Llandough Hospital
Penarth, Glamorganshire
Wales

Unknown or psychogenic cause with reaction manifest

714 Davison, B. C. Clare, Ellis, Hugh L., Kuzemko, J. A., & Roberts, D. F. Mental retardation with facial abnormalities, broad thumbs and toes and unusual dermatoglyphics. Developmental Medicine and Child Neurology, 9(5):588-593, 1967.

A 14-year-old girl with MR, physical retardation, facial abnormalities, broad thumbs and great toes, unusual dermatoglyphic findings, and a possible chromosomal abnormality may represent a specific entity described previously. Except for growth retardation and a chronic cough, her early development seemed normal. At about 1 year she was noted to have a short beak-like nose, moderate frontal bossing, a small head, right-sided ptosis, low-set ears, and repeated convulsions. At 5 years of age she scored an MA of 1 year (Merrill Palmer Scale) and a social age of 2 (Vineland Social Maturity Scale). At 14 years of age she scored 32 on the Stanford Binet Form L-M and was below the third percentile in height and weight. Dermatoglyphic abnormalities consisted of considerable skin creasing, 2 main transverse palmar flexion creases, missing c triradius at the base of digit 4, and low palmar a-b ridge count. Chromosomal analysis was not diagnostic but an inability to satisfactorily pair C-group chromosomes was noted; 2 chromosomes were consistently unpaired in 9 of 30 cells analysed. Family history was not particularly remarkable. This patient seems to best fall into a group of children previously described, although she does appear to have a chromosomal anomaly. (8 refs.) - R. Froelich.

Population Genetics Research Unit
Old Road
Headington, Oxford, England

715 Matsaniotis, N., Baroutsou, E., Georgas, D., & Ioannidis, Th. Phenomene digito-oculaire. (Digito-ocular phenomenon.) Archives Francaises de Pediatrie, 24 (4):463-468, 1967.

The "digito-ocular phenomenon" described by Franceschetti in 1939 is presented in 2 cases of MR girls. The first patient (CA, 3½ years) had never developed speech and could not control her eye movements. During her stay at the clinic she was observed on several occasions to place the index finger of her left hand behind the external canthus of the palpebral fissure and press gradually, producing an exopthalmus which nearly displaced the globe of the eye. If her hands were restrained, she attempted to utilize the big toe of her left foot to execute this phenomenon. The second patient (CA, 4 years) presented spastic quadriplegia and SMR (with normal vision) secondary to prolonged neonatal anoxia. She also was observed to extend pressure on the upper portion of her globe, causing extreme ocular elevation. Both patients had an expression of extreme contentment during this maneuver. It is proposed that this phenomenon is a particular form of

coitus using the erogenous area of the eye-as opposed to the view that occular pressure causes visual sensations. (8 refs.) - W. Asher.

University of Athens
Hospital Saint-Sophie
Goudi (T.609), Greece

716 Passarge, Eberhard, & McAdams, A. James. Cerebro-hepato-renal syndrome. Journal of Pediatrics, 71(5):691-702, 1967.

A syndrome of generalized hypotonia, craniofacial dysmorphia, hepatomegaly, and renal cortical cysts was found in 4 sisters. No parental consanguinity was found, and 8 siblings were normal. Cytogenetic studies were normal in affected Ss and relatives. All died in early infancy. Moro and deep tendon reflexes were absent in all Ss, but pain perception was present. Findings included diffuse lack of myelin in the brain with macro-and polymicrogyria and sudanophilic neutral lipid deposits in the sclerotic white matter. Congenital heart disease and minor skeletal abnormalities were also present. An autosomal recessive inheritance is postulated. The name cerebro-hepato-renal syndrome is suggested for this disorder of unknown etiology. (28 refs.) - W. A. Hammill.

Cornell Medical College
1300 York Avenue
New York, New York 10021

717 Curtin, Victor T., Joyce, Eugene E., & Ballin, Norman. Ocular pathology in the oculo-cerebro-renal syndrome of Lowe. American Journal of Ophthalmology, 64(3,II): 533-543, 1967.

Genetically determined, in utero maldevelopment of the lens was the primary ocular defect found in 2 cases of the oculo-cerebro-renal syndrome of Lowe (OCRL). Pathological examinations were done on 2 male Caucasians (CA, 5 mo and 7 mo) having MR, physical retardation, cataracts, glaucoma, hypotonia, aminoaciduria, glycosuria, and albuminura. In each case the lens revealed abnormal development of its constituents and microphakia; the latter resulted in glaucoma and in abnormalities in the angle, ciliary body, and peripheral retina. OCRL is transmitted by heterozygous females and expressed in males. Mothers of affected patients may show small lenticular opacities on slitlamp examination and abnormal amino acid metabolism. While the renal malfunction is agreed to be tubular, there is dispute as to whether it is a primary genetic defect or secondary to faulty amino acid metabolism. The lenticular defect, however, appears to be a primary genetic defect occurring very early in development, probably commencing prior to the fifth week. The microphakia, which could be due to an abnormal metabolic environment, appears to draw forward all the structures in the anterior segment, thus causing pathological changes and glaucoma. Although rare, OCRL should be considered in all cases of congenital cataracts and glaucoma associated with hypotonia, MR, poor growth and development, and cryptorchidism. Blood and urine analysis will confirm the diagnosis. (14 refs.) - E. Gaer.

Department of Opthalmology
University of Miami School
of Medicine
Miami, Florida 33100

718 Parker, Neville. Neurological disorders involving the muscles of facial expression. Rehabilitation in Australia, 4(5):6-9, 1967.

Six children with congenital facial diplegia were studied and found to have dystrophia myotonia (1), Moebius syndrome (4), and a previously undescribed syndrome (1). The boy with dystrophia myotonia was 1 of 4 affected siblings, all of whom were MR. All showed generalized myotonia, as did their mother. Their ages ranged from 8 to 16 years, and the 2 youngest were the more severely defective and had the greatest degree of facial weakness. The greatgrandfather, maternal grandfather, mother, 3 uncles, and 2 cousins were affected; one cousin was also MR. The boy was born with facial diplegia, was a flabby child, and presented a serious management problem because of poor feeding. It was not certain if his siblings had facial diplegia from birth. The 4 patients with Moebius syndrome were of normal intelligence. This syndrome now is included in a wide variety of congenital neuro-muscular abnormalities of cranial nerve origin. They have a lax myotonic face but a tightness about their expression and other congenital abnormalities. In contrast to reports of MR occurring with this syndrome, psychological tests revealed scores higher than anticipated from cursory clinical examination. A boy with bilateral facial palsy and MR was the product of a

consanguineous marriage and could not be classified into any known syndrome. The occurrence of 6 children with facial diplegia in Brisbane suggests that the incidence elsewhere is higher than reported. (No refs.) - R. Froelich.

University of Queensland
Brisbane, Australia

719 Hooft, C., Kriekemans, J., Van Acker, K., Devos, E., Traen, S., & Verdonk, G. Sjögren-Larsson syndrome with exudative enteropathy: Influence of medium-chain triglycerides on the symptomatology. Helvetica Paediatrica Acta, 22(5):447-458, 1967.

An 8-year-old MR boy with Sjörgren-Larsson syndrome and an exudative enteropathy (a combination not previously reported in the literature) was treated with a diet containing short-chained fats, which resulted in improvement of the clinical condition. A diagnosis of ichthyosiform hyperkeratosis was made at 1 week of age, and hydronephrotic degeneration was discovered at 6 weeks of age. He had episodic fever and prolonged generalized convulsions from 5 years of age. Developmental milestones were markedly delayed. At 8 years of age he was very restless and could only utter some unintelligible sounds. Clinical findings included a rough expoliative hyperkeratosis, dry hypertrophic tongue, hypertonicity, spastic gait, a hypochromic anemia, and an abnormal electroencephalogram. His IQ was around 23 (Buhler-Hetzer). Serologic disorders included a hypoproteinemia, marked hypoalbuminemia, hypocalcemia, and hypolipidemia. Chronic diarrhea had been present since the first year. He showed increased fecal excretion of lactic acid, fat, and fatty acids, and the polyvinylpyrrolidone tests were pathologic. The triad of MR, congenital generalized ichthyosis, and spasticity of the lower limbs was characteristic of Sjögren-Larsson syndrome. Because of the steatorrhea, a test diet containing only "medium chain" (C_{12}) triglycerides was tried. Improvement consisted of disappearance of symptoms of exudative enteropathy and the ichthyosiform rash and improvement of the psychic and motor condition. This result persisted and shows the relationship between the diseases of the skin and intestine. (45 refs.) - R. Froelich.

Department of Pediatrics
Rijksuniversiteit
Gent, Belgium

720 Roaf, Robert, Longmore, J. B., & *Forrester, R. M. A childhood syndrome of bone dysplasia, retinal detachment and deafness. Developmental Medicine and Child Neurology, 9(4):464-473, 1967.

Four children (1 MR) with bone dysplasia, dwarfism, pseudoglioma, blindness, and deafness are described. The association of retinal detachment and bone dysplasias probably represents a syndrome. The bone disorder presented first in 3 cases and the other case may represent a separate disorder. The MR child had a cleft palate and presented with bilateral congenital retinal detachments. At 8 years of age he was extremely retarded. The hearing defects among these children varied, and the location of the defect was not settled. The most typical x-ray abnormality was splaying of the metaphyseal and epiphyseal regions of long bones. Other deformities were regularly present. The underlying eye lesion in each case was retinal detachment. Biochemical investigations did not reveal significant abnormalities. The MR child was more dwarfed, more retarded, and less deaf than the others and may not have the same condition. Definite statements about these cases cannot be made until similar cases are discovered. (14 refs.) - R. Froelich.

*Royal Albert Edward Infirmary
Wigan, Lancashire, England

721 Jancar, J. Ectrodactyly, spastic paraplegia and mental retardation. Journal of Mental Deficiency Research, 11(3): 207-211, 1967.

A 19-year-old male with severe MR has associated bilateral ectrodactyly and spastic paraplegia. Although there is no family history of consanguinity, MR, and neurological or skeletal abnormalities, the pregnancy was complicated by severe congestive heart failure caused by mitral stenosis. Also present are high narrow palate, kyphoscoliosis, female escutcheon, talipes equinovarus, and wasting of the lower extremities. IQ (Terman-Merrill Form L & M) is 18. Karyotype, buccal smear, urine amino acids, and dermatoglyphics (where possible) are normal. Fetal hypoxia due to maternal heart disease during the crucial period for digital development (5th-6th week) is postulated as the etiology of the combined defects. (13 refs.) - W. A. Hammill.

Stoke Park Hospital
Bristol, England

722 Antia, Asuquo U., Wiltse, Hobart E., Rowe, Richard D., Pitt, Elaine L., Levin, Sidney, Ottesen, Ole E., & Cooke, Robert E. Pathogenesis of the supravalvular aortic stenosis syndrome. Journal of Pediatrics, 71(3):431-441, 1967.

Of 15 clinically studied children with supravalvular aortic stenosis syndrome, 8 demonstrated MR and 7 showed a high variability of IQ. Patients were between 2 and 16 years of age and could be divided into 3 groups according to type of facies. Five patients had a facies consisting of broad forehead, hypertelorism, heavy cheeks, and pointed chin. Four patients had facies dissimilar to their parents' and 6 had normal facies. Two were born prematurely. Developmental milestones were delayed in most children and hypotonia of some degree was found in 7. All children had additional abnormalities other than aortic stenosis. Two patients had infantile hypercalcemia, and 1 had skeletal changes consistent with hypervitaminosis D. This further supports the contention that an association exists between hypercalcemia and supravalvular aortic stenosis. Retrospective studies did not reveal an explanation for this association. The MR and brain damage were similar to those described in infantile hypercalcemia. Other abnormalities that might be a manifestation of hypercalcemia were nephrocalcinosis, osteosclerosis, corneal calcium depositions, craniosynostosis, dental malocclusion, and elfin face. (57 refs.) - R. Froelich.

Department of Pediatrics
The Johns Hopkins University
School of Medicine
Baltimore, Maryland

723 Miller, Michael E., & Chatten, Jane. Ovarian changes in ataxia telangiectasia. Acta Paediatrica Scandinavica, 56(5): 559-561, 1967.

Post mortem discovery of ovarian follicular agenesis in an 11-year-old Negro female with ataxia telangiectasia demonstrates that this association is more common than is usually recognized. The girl developed normally until 14 months of age, when she began having difficulty walking. She deteriorated neurologically and at 7 years of age, when conjunctival telangiectases were first noted, she had poor balance, dysarthric speech, profound intention tremor, dyskinetic posturing, nystagmus, and arm movements poorly associated with walking. At age 9 years she began having increasingly frequent respiratory infections. Immunological investigations showed: inability to be sensitized to repeated applications of 2,4 DNFB; negative monilia skin test; markedly depressed leukocyte response to in vitro phytohemagglutinin stimulation; absence of IgA; and poor antibody response to diphtheria, tetanus, and polio I antigens. Death occurred at age 11 from repeated respiratory infections. Autopsy showed infantile uterus, ovaries, and fallopian tubes. The ovaries on cross-section contained only 1 to 4 primordial follicles separated by normal stroma. Other organs exhibited those changes usually seen in patients with ataxis telangiectasia. The etiology of the association between ovarian abnormalities and ataxia telangiectasia may be related to abnormal development of the germ cell and mesenchyme during embryogenesis. (16 refs.)- R. Froelich.

University of Pennsylvania
School of Medicine
Philadelphia, Pennsylvania

724 Hayakawa, Hiroshi, & Kobayashi, Noboru. Blasts in ataxia-telangiectasia. Lancet, 1(7502):1279, 1967. (Letter)

Blastoid and tritium-labeled cells were counted for 2 patients with ataxia-telangiectasia. An 8-year-old boy who had had immunoglobulin showed impaired blastic transformation and decreased tritium-labeling of cells. A 14-year-old boy with 394 mg/100 ml of immunoglobulin A in his plasma showed almost the same results. (2 refs.) - J. Snodgrass.

Faculty of Medicine
University of Tokyo
Tokyo, Japan

725 Barbero, Giulio J., & Shaheen, Eleanor. Environmental failure to thrive: A clinical view. Journal of Pediatrics, 71(5):639-644, 1967.

Environmental failure to thrive is a syndrome in children who fail to develop without underlying causative organic disease and who improve after exposure to better environmental situations. They can be classified into groups of Ss without systemic symptoms, with symptoms, with concurrent

disease, and with signs of injury. Diagnostic criteria are: weight below the third percentile with acceleration in proper environment, absence of systemic disease, other signs of deprivation, and environmental psychosocial deprivation. Weight is more retarded than height, and the Ss are often withdrawn and irritable. MR is suspected in many cases. Emotional status, growth, and development improve rapidly in the proper hospital setting, while possible underlying organic causes are evaluated. Close cooperation between physician, nursing staff, and social worker are necessary for diagnosis and care. Socioeconomic improvement of the family is only a part of total treatment. Parental guilt and feelings of inadequacy must be removed and often a prolonged hospitalization or convalescent home stay is required. (10 refs.) - W. A. Hammill.

Children's Hospital of Philadelphia
Philadelphia, Pennsylvania

726 Poverty and mental retardation. Scientific American, 217(6):50, 1967.

Physically and mentally normal children can be transformed into retarded ones during their second and third years by conditions of poverty such as malnutrition and environmental impoverishment. Eighty percent of 6-year-old children from deprived backgrounds scored borderline retarded as compared with 15 percent of children from other income brackets. (No refs.) - J. Snodgrass

727 Environmental causes of CNS deformities. New England Journal of Medicine, 277(21):1147, 1967. (Editorial)

Population studies have shown that anencephalus, spina bifida, and meningocele are of environmental causation. It would seem unlikely for such deformities to be repeated genetically, since the genes are not passed on to the next generation. The rates of anencephalus and spina bifida in Massachusetts have been found to be high in Irish ancestry and low in Jews. This difference is not great when only the higher socioeconomic groups are included. These findings suggest that there are ethnic and socioeconomic factors that affect the frequency of central nervous system deformities. It will be of interest to see what the effect of family size has on the frequency of these disorders. (No refs.) - R. Froelich.

728 Zwerdling, Michael A. Factors pertaining to prolonged pregnancy and its outcome. Pediatrics, 40(2):202-212, 1967.

The fetal and neonatal mortality rates of prolonged pregnancies are double those of normal term pregnancies. Surveyed were 9,719 singleton pregnancies of white mothers from Oakland, California and 358,702 singleton pregnancies of white mothers from New York City. Of these 705 (7.3 percent) from Oakland and 19,262 (5.4 percent) from New York terminated after 43 weeks gestation. Prolonged pregnancy was more frequent among primigravidas and women of high parity. About one-third of the women with a prolonged pregnancy had a history of a previous abortion, stillbirth, or live birth loss. The general socioeconomic status was lower for the women with prolonged pregnancy. In every 1,000 prolonged pregnancies there were 9.9 fetal deaths and 5.7 neonatal deaths in Oakland and 13.4 fetal deaths and 11.2 neonatal deaths in New York. Post-term infants that weighed less than 2,500 gm had a neonatal mortality of 70.4. The mortality for post-term infants between 2,500 gm and 4,100 gm was 8.7, which was similar to a mortality of 8.0 for infants weighing over 4,100 gm. The post-term infants had more congenital anomalies and had an increased mortality that extended to 2 years of age. No growth or intellectual retardation could be found in a small group that was examined at 5 years of age. The pathophysiology of prolonged pregnancy was not determined. (18 refs.) - R. Froelich.

Child Health and Development Studies
3867 Howe Street
Oakland, California 94611

729 Hockey, K. A., & Hawks, D. V. An analysis of birth weight and period of gestation in relation to mental deficiency with particular reference to "small for dates" babies. Journal of Mental Deficiency Research, 11(3):169-184, 1967.

The percentage of low birth weight infants - premature and small for gestational date (SFD) - is higher in MR Ss than in randomly selected controls. A retrospective study of 1,514 births of MR Ss evaluated gestational age, birth weight, physical defects, and specific etiologic diagnosis of MR (AAMD classification). Intrauterine growth retardation and SFD were associated with maternal rubella and toxoplasmosis, postnatal meningitis and encephalitis, toxemia,

placental insufficiency and bleeding, mongolism, and a large group of "unknown prenatal influences." MR twins have an increased incidence of both prematurity and SFD. The impact of intrauterine influences on general growth and mental development needs to be further defined. (38 refs.) - W. A. Hammill.

Irrabeena Centre
Mental Health Services
Perth, Western Australia

730 De Hirsch, Katrina, Jansky, Jeannette, & Langford, William S. Comparisons between prematurely and maturely born children at three age levels. American Journal of Orthopsychiatry, 36(4):616-628, 1966.

Comparison of 53 prematurely and 53 maturely born children revealed that in kindergarten, first, and second grades the performance of the prematures was inferior to that of the matures. All Ss were of average intelligence, had no significant sensory deficits or psychopathological problems, came from homes in which English was the primary language, and had similar background characteristics. Both groups were tested at kindergarten age for behavioral patterning, motility patterning, large motor coordination, fine motor control, visual perception, visuo-motor competence, oral language, reading readiness, and ability to invest effort. Reading and writing were tested at the end of the first and second grades, and in addition to a spelling test, 4 of the kindergarten tests were repeated at the end of the second grade. At both first and second grade levels, premature girls performed better than premature boys in writing, spelling, and reading. Lower-weight premature children tended toward poorer performance. The present findings indicate that prematurely born children constitute an "academic high risk group." (43 refs.) - J. Snodgrass.

Pediatric Language Disorder Clinic
Columbia Presbyterian Medical Center
New York, New York

731 Creery, R. D. G. The infant of low birth-weight. Nursing Mirror, 125 (3):xii-xv, 1967.

Although the premature and the "small for dates" infants are similar in that both have low birth-weight, their management and prognosis are appreciably different. Recently it has become known that only about two-thirds of low birth-weight infants are premature. The rest are "small for dates" due to intra-uterine growth failure. The premature infant is prone to such physiological and anatomical difficulties as respiratory distress syndrome, intracranial damage, secondary hypoglycemia, hypothermia, profound physiological jaundice, infection, and anemia. Uncontrolled amounts of oxygen can cause retrolental fibroplasia in the premature infant. Specialized care for these infants includes intermittent positive-pressure ventilation, endotracheal intubation, antibiotics, biochemical investigation, intravenous and transfusion therapy, and tube feeding. Unless the diagnosis is in question or the clinical condition is severe, the "small for dates" infant does not have to be transferred to a special baby care unit. They usually do not have respiratory and central nervous system problems; however, they do develop hypoglycemia and hypothermia and do warrant special care. Early tube feeding is probably indicated in many premature and dysmature infants. The special baby care unit should be the focal point of medical care. (No refs.) - R. Froelich.

No address

732 Monod, N., Eliet-Flescher, J., & Dreyfus-Brisac, C. Le sommeil du nouveau-né et du prématuré. III. Les troubles de l'organisation du sommeil chez le nouveau-né pathologique: Analyse des études polygraphiques. (The sleep of the full-term newborn and premature infant. III. The disorders of the pathological newborn sleep organization: Polygraphic studies.) Biologica Neonatorum, 11(3-4):216-247, 1967.

An analysis of 62 polygraphic tracings taken during sleep in 27 newborn infants with various forms of pathology point out the great fragility of the relationship between the different physiological components of sleep. The pathological conditions included malformations, cerebro-meningeal infections and hemorrhages, obstetrical trauma and other intrauterine abnormalities. EEG, electromyogram, eye movements, respiratory rhythm, and electrocardiogram tracings were simultaneously recorded. Results show an absence of any cyclic sleep organization in 12 cases, most of which were in the acute phase of severe physiological derangements. The remainder of the cases showed only a very fragile relationship between EEG and the other physiologic parameters measured. Further studies will permit a better appreciation of the

level of lesions in those derangements which disturb sleep. The daily variability of the sleep cycle organization makes analysis difficult. (59 refs.) - W. Asher.

Groupe Hôpitaliers Pitié
Salpetrière, Secteur Pitié, 83
Bd de l'Hôpital
Paris 13e, France

CONVULSIVE DISORDERS

733 Brett, E. M. On a peculiar mode of onset of epilepsy in childhood: Epileptogenous encephalopathy. Journal of the Neurological Sciences, 4(2):315-338, 1967.

Seven boys and 1 girl between 3 and 9 years of age suddenly and dramatically developed convulsions associated with a variety of psychological and neurological abnormalities and with no known etiology, history of epilepsy or positive family history. Although 5 had a history of perinatal abnormality, only 1 did not have a good neonatal condition. Except for delayed speech in 1 child, development was normal. Except for 1 child who had developed a mild upper respiratory infection 3 weeks before the attack, none had experienced any precipitating factors. Six children began the episode with a major seizure. In 4 cases the second convulsive attack occurred exactly 7 days after the first. Aphasia occurred during the acute stage in 2 cases. Epilepsy has ceased in 3 cases for 2-5 years but continues to be a problem in 5 cases. Two cases are subject to periodic episodes of "pseudo-ataxia" and "pseudo-dementia" in which myoclonic jerks and lowering of responsiveness occurs. Neurological signs developed in 6 cases but have disappeared in all but 1, who had slight manipulative clumsiness 5 years later. Four cases showed mild to moderate intellectual deterioration, and pneumo-encephalography revealed cerebral atrophy in 3 cases. The electroencephalogram was abnormal in all patients, with some degree of abnormality persisting in each case. The term "epileptogenous encephalopathy" has been used for this disorder, but no clear etiological factors have been found. A "neuro-allergic encephalitis" is a possibility. (39 refs.) - R. Froelich.

Department of Neurology
Hospital for Sick Children
London, England

734 Lovelace, R. E., & Horwitz, S. J. Peripheral neuropathy in long-term diphenylhydantoin therapy. Archives of Neurology, 18(1):69-77, 1968.

Clinical and electromyographic (EMG) evidence of peripheral neuropathy was found in 20 Ss on long-term diphenylhydantoin (DPH) therapy. Fifty consecutive seizure Ss (ages 12-50 years) without diabetes, alcoholism, liver disease, malnutrition, or renal disease who had taken DPH continuously for 5 or more years and who had normal reflexes initially were evaluated for sensory, motor, or coordination abnormalities and were given a complete neurological examination. None of 50 had absent knee and ankle jerks. Conduction velocity was slower in the areflexic DPH group than in the normal controls. Eight of the 50 Ss with normal reflexes tested by EMG also had decreased conduction velocity. Lower extremity nerves were more affected than upper extremity nerves. Nineteen of the 20 areflexic Ss had taken DPH for more than 10 years. Daily dosage of DPH was not related to development of neuropathy. DPH is the drug of choice for many forms of epilepsy, and Ss receiving this drug should be periodically evaluated for signs of peripheral neuropathy. (21 refs.) - W. A. Hammill.

Neurological Institute
710 West 168th Street
New York, New York 10032

735 Dereymaeker, A., & Sorel, L. Experimental epilepsy and blood-brain barrier. Epilepsia, 8(3):145-156, 1967.

Four substances (amylocaine, hexylcaine, lidocaine, and dioxone) were found to have an epileptogenic effect when given intravenously to rabbits but to have no such effect when applied directly to the cerebral cortex; this suggests that the site of action of these drugs is in the cerebral capillaries rather

than the cerebral substance itself. The agents were local anesthetics (lidocaine, hexylcaine and amylocaine) and a cardiovascular analeptic (dioxone). Electroencephalographic (EEG) recordings were made throughout the study. Animals showed major clinical and EEG changes, but they recovered completely after the seizures (except for a few mortalities with lidocaine). These effects did not occur when the agents were given by carotid artery except for lidocaine. Test agents were topically applied to the cerebral cortex without effect. Agents were also injected beneath the cortex in different directions and depths without epileptogenic effect. Heparinized blood of the animal was mixed with the agents in order to control for compound solubility. The results do not support the hypothesis that the blood-brain barrier is important in the mechanism of this type of experimental epilepsy; therefore, the term "phragmatic epilepsy" is suggested. Such a mechanism could be of significance in human epilepsy. (83 refs.) - R. Froelich.

Neurological and Neurosurgical
Clinic
University of Louvain
Louvain, Belgium

736 Hagberg, Bengt, & Killander, Andreas. Anticonvulsive drugs and disturbed folic acid metabolism. Developmental Medicine and Child Neurology, 9(5):647-648, 1967. (Annotation)

Anticonvulsants such as phenytoin, phenobarbitone, and primidone can cause megaloblastic anemia and disturbances in folate metabolism. Megaloblastic changes in the bone marrow were seen in 17 of 45 randomly selected outpatients receiving these drugs. More important side effects observed were neurological disorders and induced status epilepticus. Folic acid therapy improved the mental state of 22 of the 26 patients with folate deficiency and epilepsy. In 13 cases the frequency or severity of the epilepsy was aggravated. The possibility of drug-induced disturbances as the cause of mental symptoms should be considered. General prophylaxis of epileptics with folic acid is not presently recommended. Individual cases should receive folic acid only after appropriate neurological and hematological tests. (10 refs.) - W. Asher.

Department of Pediatrics and
Clinical Chemistry
University Hospital
Uppsala, Sweden

737 Snyder, C. Harrison. Infantile spasms: Favorable response to steroid therapy. Journal of the American Medical Association, 201(3):198-200, 1967.

Early diagnosis of idiopathic infantile spasms and immediate treatment with hydrocortisone cypionate (HCC) can stop the seizures and prevent MR. Of the 56 infants with infantile spasms, 37 were classified as idiopathic and 19 as secondary. The latter category included 7 with tuberous sclerosis, 5 with cerebral dysgenesis, 2 each with neonatal anoxia toxoplasmosis and hypoglycemia, and 1 with encephalitis. Infant age at time of initial seizure ranged between 2 weeks and 21 months. The seizures were characterized by abrupt flexion of the extremities and neck. The EEGs usually showed hypsarhythmia or a variant. Treatment consisted of HCC in dosages of 60 mg/day for infants under 6 months of age and 80 mg/day for those older. Dosage was maintained for 6 weeks, after which it was halved for 3 months - provided the S was doing well and showed a normal EEG. The steroid was gradually reduced until it was discontinued at 1 year. If a relapse occurred, full dosage was resumed immediately. Appraisal included only the 48 Ss (30 idiopathic and 18 secondary) who had been observed longer than 2 years. Of the 28 Ss treated with HCC, 8 (29 percent) have IQs above 90; only 2 of the 20 controls have normal intelligence. Twelve control Ss and 15 HCC-treated Ss continue to have seizures; all mentally normal Ss are seizure-free. All infants with secondary infantile spasms remained MR regardless of treatment. Ten of the idiopathic group are now normal. (13 refs.) - A. Huffer.

1514 Jefferson Highway
New Orleans, Louisiana 70121

738 Logothetis, John. Methetoin (N-3) treatment in epilepsy. Diseases of the Nervous System, 28(8):515-518, 1967.

Thirteen of 20 epileptics treated with Methetoin (N-3) over a 6 to 66-month period responded favorably to the treatment. Diagnoses were major motor seizures (11 Ss), psychomotor and major motor attacks (4 Ss), and focal seizures with or without major motor attacks (5 Ss). Dosage ranged from 300 to 600 mg daily. Of those considered to have a good response to medication, 4 had complete or nearly complete control of their seizures. Five were markedly improved, and 4

had moderate improvement (50-75 percent reduction of seizures). Those patients with bilateral bursts of EEG abnormalities were most resistant to treatment. Toxic effects included a slight leucopenia in 4 Ss and transient mental confusion in 1 S. No other side effects were noted. N-3 appeared to be an effective anti-convulsant medication. Side effects were relatively uncommon considering the prolonged administration of the drug. Other observers have found other side-effects including ataxia, skin rash, sedation, irritability, edema, lymphadenopathy, and hematological changes. Consumption of 4,000 mg of N-3 in an attempted suicide was not fatal and left no sequelae. (8 refs.) - R. Froelich

University of Minnesota Medical School
Minneapolis, Minnesota

739 Livingston, Samuel. Legal problems with diazepam for epilepsy. Journal of the American Medical Association, 200(9): 799-800, 1967. (Letter)

Diazepam (Valium) has been recommended by experts for treatment of epilepsy, particularly myoclonic epilepsy and status epilepticus; however, a package insert states a contraindication for its use with ". . . patients with a history of convulsive disorders . . ." Only physicians authorized by the Food and Drug Administration may presently prescribe for this purpose without undergoing a great risk of legal action. (No refs.) - J. Snodgrass.

No address

GENETIC DISORDERS

740 Wright, S. W., Day, R. W., Muller, Helga, & Quigley, Marilyn. Investigations of families with two or more mentally defective siblings: III. Chromosome studies. American Journal of Diseases of Children, 114(1):69-71, 1967.

Chromosomal analyses of 91 MR sibs from 51 families revealed 1 male patient to have a mosaic condition involving a G chromosome but no chromosomal abnormalities in the remaining patients - which indicates that gross chromosomal abnormalities do not frequently occur in MR sibs unless associated with specific clinical syndromes. The study was done at an institution for the MR. Seventy-five sibs had IQs below 50. Two-thirds were boys. Chromosomal studies were done on leukocyte and skin cultures with 2 karyotypes and autoradiography performed. Ninety patients had a normal chromosome number and normal karyotypes. One 26-year-old male patient had 75 percent of his cells showing a chromosome number of 47, with an additional member of the G+Y group. Autoradiography could not differentiate if it was chromosome No. 21 or 22 but did indicate that Y was not present. He showed no clinical evidence of Down's syndrome. His MR sister and normal brother and mother had normal karyotypes. Other patients had variations in the length of individual chromosomes. The low frequency of chromosomal abnormalities in this study could be a reflection of the high mortality in these patients or the insensitivity of current techniques of chromosome study. Nevertheless, chromosomal analysis of siblings of MR children appears to be unrewarding. (13 refs.) - R. Froelich.

Research Division
Pacific State Hospital,
Box 100
Pomona, California 91766

741 Lozzio, Carmen B., Jauregui, Guillermo R., Scornavachi, Juan C., & Gambin, Miguel A. Chromosome mosaicism in a mentally retarded mother and her daughter. Journal of Medical Genetics, 4(2):124-131, 1967.

Mosaicism 46/47 was found in an MR 17-year-old girl with obesity, hypertension and hypothyroidism and also in her MR mother. The 38-year-old mother was obese and had an MA of 8.5. At 15 years of age, the girl had an IQ of 22. Two brothers, ages 13 and 14, were also MR. The girl's blood serotonin levels were markedly increased on 2 determinations (1280 mμg and 1980 mμg/1000 ml). Decreased excretion of 5-OH indolacetic acid in the urine was found in both the girl and her mother. Chromosome analysis of the mother's peripheral blood cells (117 cells) showed 46 chromosomes in 89 cells and 47 chromosomes in 19 cells. Six of the supernumerary cells had an extra small acrocentric chromosome. Three cell cultures from the daughter's blood and bone marrow showed similar findings, including the extra small acrocentric chromosome. This small chromosome could be chromosome 21, 22, Y, or a fragment of another chromosome. Because of the increased serotonin levels and the absence of clinical mongolism, it is probably not a

299-809 O - 68 - 5

chromosome 21; nor do clinical findings support a 22 trisomic condition or a Y chromosome. It most likely represents a centric fragment of an autosome. (35 refs.)- R, Froelich.

Memorial Research Center and Hospital
University of Tennessee
Knoxville, Tennessee

742 Krogman, Wilton Marion. The role of genetic factors in the human face, jaws and teeth: A review. Eugenics Review, 59(3):165-192, 1967.

The evidence about the phenotypic expression of facio-dental traits in man is discussed and genetic aspects of aberrations of the cranio-facial skeleton are considered. Differentiation between genetic and teratogenic effects in cleft lip and palate cannot be completely made, but it is likely that secondary cleft palate is largely teratogenic and primary cleft lip and palate are genetic. Twin, family, and racial studies have shown that many dental characteristics are under genetic control. These include tooth-size, enamel and dentin structural defects, congenital absence of teeth, hypodontia, microdontia, and tooth calcification and eruption. Dental development probably is mediated by the same factors controlling physical and sexual maturation in general. There may be genetic factors affecting the complex entity of dental caries. Tooth-bone inter-relationships showed evidence of polygenetic "patterning" and association with pathological syndromes. This is shown by roentgenographic cephalometry either by elucidating unit traits or functional loci or by comparing the overall total cephalo-facial complex "pattern". Syndromes included in tabular form are trisomy 21, XXY syndrome, XO syndrome, Seckel syndrome, Hurler's syndrome, hypertelorism, and Pierre Robin syndrome. A table of traits and their genetic nature is presented. (146 refs.) - R. Froelich.

School of Medicine
University of Pennsylvania
Philadelphia, Pennsylvania 19100

743 Childs, Barton. Genetics and child development. American Journal of Diseases of Children, 114(5):464-469, 1967.

Knowledge in the area of human genetics has grown exponentially since the early 1960s. The rapid rate of increase (about 20 percent per year) in the number of disorders known as inborn errors of metabolism and the increasing rate of description of hemoglobin variants (over 120 due to genes at 4 loci) are but 2 examples that the field is still in its earliest phase of discovery. Merely categorizing this information may become a considerable problem in the future. Knowledge of genetic propensity to disease ought to enable the construction of environments permitting the escape of potentially affected persons. Gene control of sequences of development is perhaps the most important area of present investigation, for the ability to predict and even to influence development, and therefore behavior, would revolutionize child rearing, education, and pediatric care. Transplants may become possible by turning off appropriate genes. A new positive eugenics has resulted through the awareness that the human genetic load (the accumulation of undesirable genes in the common gene pool) may become great enough to outstrip medical technology and cripple us. Mutagens, such as X-rays, may raise the mutation rate enough so that epidemics of the very diseases we now are attempting to control will plague future generations. Treating recessive genetic disease on the assumption that single doses are harmless can result in the accumulation of these genes and further add to the genetic load. The physician of tomorrow must be prepared to meet the social and medical implications presented by the rapidly growing body of knowledge in human genetics. (8 refs.) - A. C. Molnar.

601 N. Broadway
Baltimore, Maryland 21205

744 Naeye, R. L. Prenatal organ and cellular growth with various chromosomal disorders. Biologia Neonatorium, 11 (3-4):248-260, 1967.

Autopsy material from newborn infants with trisomy D (6), trisomy E (8), and mongolism (21) revealed a variety of defects and a rather consistent growth retardation that correlated with a subnormal number of cells in many organs. All infants died within the first week of life. Some anomalies such as ventricular septal defects were common in all groups, but many were centered in 1 group. Microcephaly was present in 2 trisomy D cases and 1 mongoloid. Craniolacunia, premature suture closure, cataracts, and neck webbing were present in 1 trisomy D case. Micrognathia was present in 5 trisomy E cases and 2 trisomy D cases. Great differences between the groups were found in the limbs. Birth weights were markedly subnormal for trisomy D and E infants. Trisomy D_1 infants had

enlarged adrenals and small thymus glands. Trisomy E infants had relatively large kidneys and brain and small adrenals. Mongoloids had small kidneys, adrenals and thymus glands. Most organs had a subnormal number of parenchymal cells for the Ss' gestational age. The exception was an increased number of fetal cortical cells in trisomy D infants. Some possible mechanisms for these findings include a metabolic slowing of cellular multiplication or a shortened life span. (39 refs.) - R. Froelich.

Department of Pathology
University of Vermont
College of Medicine
Burlington, Vermont

745 Pharmacogenetics. New England Journal of Medicine, 277(19):1034-1035, 1967. (Editorial)

In the past, the term pharmacogenetics denoted the effect of genetic factors on the response of the host to drugs; more recently its meaning has been expanded to include the effect of drugs on the host's response to genetic disease. Examples of the latter are: the use of allopurinol in the treatment of gout, the use of D-penicillamine as a chelating agent for copper in Wilson's disease or as an agent in the production of a disulfide more soluble with cysteine in cystinuria, and the use of sulfonylureas in the treatment of diabetes. (5 refs.) - W. Asher.

746 Wolf, Charles B., Peterson, James A., LoGrippo, Gerald A., & Weiss, Lester. Ring 1 chromosome and dwarfism - a possible syndrome. Journal of Pediatrics, 71(5): 719-722, 1967.

A girl with profound dwarfism and MR was found to have a ring 1 chromosome in all cells. Birth weight (39-week gestation) was 2 lb 4 oz. At 26 months of age her weight was 7 lb 12 oz, and she was 26.75 inches tall. Her head diameter was normal for her size at birth, but it is becoming progressively smaller in proportion to her somatic growth. She had an elf-like facies and low-set ears, but no other congenital malformations were found. Cytogenetic studies revealed a ringed chromosome in all cells studied. In 74 percent of cells chromosome No. 1 was missing, and in 26 percent the missing chromosome was either No. 1 or No. 3. All cells had a total of 26 chromosomes. IQ (Cattell Infant Intelligence Scale) was 48. This case is similar to another case of Ring 1 chromosome with dwarfism and MR. (4 refs.) - W. A. Hammill.

Henry Ford Hospital
2799 West Grand Boulevard
Detroit, Michigan 48202

747 DeCapoa, A., Warburton, D., Breg, W. R., Miller, D. A., & Miller, O. J. Translocation heterozygosis: A cause of five cases of the cri du chat syndrome and two cases with a duplication of chromosome number five in three families. American Journal of Human Genetics, 19(4):586-603, 1967.

Three unrelated families with a total of 5 children with the cri du chat syndrome and 2 children with a duplication of chromosome number 5 are described and each found to have 1 parent who was a balanced translocation carrier. Family C had clinically normal parents, 2 daughters with cri du chat syndrome, a normal son, and 2 spontaneous abortions. The mother and son were balanced translocation carriers showing a deleted number 5 chromosome. Family P had clinically normal parents, a normal daughter, and 2 sons with a deletion of a B-group chromosome which probably was number 5. The mother was a balanced translocation carrier. Family L had clinically normal parents, an emotionally disturbed, moderately MR daughter, 2 normal sons, a normal daughter, and a son with MR and many features of cri du chat syndrome. The karyotype of the father and a normal son demonstrated a presumable translocation carrier state. The boy with cri du chat syndrome had a deletion of the short arm of chromosome 5. There was evidence that there was additional material on a D-group chromosome in the carriers, presumably from the deleted short arm of number 5. Genetic markers could not be found on the deleted segment. Parental translocation heterozygosis may account for 13 percent of cri du chat syndrome cases. (9 refs.) - R. Froelich.

College of Physicians and
Surgeons
Columbia University
New York, New York 10032

748 Monnet, P., Willemin-Clog, L., Gauthier, J., Peytel, J., Laurent, C., Gay, Y., & Poncet, J. La trisomie 6-12. (Trisomy 6-12.) Archives francaises de Pédiatrie, 24(8):869-879, 1967.

The seventh case of trisomy 6-12 (a female aged 8 mo) is discussed with reference to the similarity with the other cases. The

common symptoms which appear are MR, anomalies of the face and joints (in addition to heart trouble). Absence of many signs as more diagnostically significant is suggested. (8 refs.) - C. A. Pepper.

No address

749 Pitt, D. B., Wiener, S., Sutherland, G., & Pearce, P. The pericentric syndrome. Lancet, 2(7515):568, 1967. (Letter)

A second case is reported of a retarded child with broad nasal bridge, hypertelorism, epicanthic folds, microcephaly, palmar creases consisting of a single transverse crease of the left hand and 3 creases radiating from the radical border on the right hand, and pericentric inversion of a C-group chromosome. (1 ref.) - J. Snodgrass.

Department of Mental Health
Victoria, Australia

750 Giorgi, P.L., Paci, A., Ceccarelli, M., & Vizzoni, L. Chromosomal aberration involving a member of the D group in a mentally retarded child with multiple congenital anomalies. Helvetica Paediatrica Acta, 22(5):466-471, 1967.

A 4½-year-old MR boy with multiple congenital anomalies was found to have an unusual structural anomaly of a D-chromosome which consisted of a large chromosome segment translocated on its short arms. The boy weighed 1.8 kg at birth and was found to have microcephalia, internal strabism, nystagmus, low-set ears, widely spaced teeth, flexion of the third and fourth fingers, abnormal genitalia, dorso-lumbar kyphosis, hypotonia, and severe bilateral myopia. At time of examination his developmental age was 12 months, and the developmental quotient was 0.25 (Brunet-Lezine valuation). X-rays showed a broadening of the Landzert angle with platybasis and verticalization of the ethmoidal plain. The Barr body was not found in 88 cells examined from a buccal smear. Examination of 44 metaphases from leukocyte cultures revealed a modal number of 46 chromosomes per cell. Every cell had the abnormal D-chromosome, and 5 metaphases showed satellite association with the abnormal chromosome. The parents and paternal grandfather had normal karyotypes. It is likely that the interchange took place during gametogenesis. Other cases of chromosomal anomalies involving D-chromosomes reported in the literature were not similar phenotypically or cytogenetically to this case. (1 ref.) - R. Froelich.

Instituto di Clinica Pediatrica
dell'Università di Pisa
Pisa, Italy

751 Wilson, Miriam G., & Melnyk, John. Translocation/normal mosaicism in D_1 trisomy. Pediatrics, 40(5):842-846, 1967.

The first description of C-D translocation/normal mosaicism is presented in a case report of a Caucasian female born after a normal 40-week gestation and normal delivery. Her 22 and 23-year-old parents and 2 other siblings were phenotypically normal and had normal karyotypes. Chromosomal analyses of leukocyte cultures, bone marrow preparations, and a skin biopsy revealed: (1) a modal number of 46 chromosomes in all tissues, (2) 15 of 50 cells in the peripheral blood culture having a missing C chromosome and 5 chromosomes in the B group, (3) an unpaired chromosome in the B group larger than the other 4, (4) normal karyotypes in the remaining cells, (5) a missing C and large, unimpaired B in 3 of 9 cells from the bone marrow preparation, and (6) a missing C and the translocational chromosome in all 22 analyzable cells from the fibroblast culture. Continuous labeling with tritiated thymidine indicated the pattern in the translocation chromosome to be that of a late replicator consistent with a D_1. The propositus was full term, had a high forehead, a 30.5 cm head circumference at birth, a small anterior fontanelle, capillary hemangiomas over the brow and lids, microphthalmia, mongoloid slants, bilateral colobomas of the iris, hypotelorism, flat nose, bilateral cleft lip and palate, 1 umbilical artery, index fingers overriding the thumbs, flexed elbows and knees, and hyperconvex nails. Fetal hemoglobin was within the normal range. Death occurred on the one hundred and twenty-fourth day of life, after myoclonic convulsions, hypertonicity, lability of body temperature (35° C to 40° C), and severe developmental retardation. Neuropathologic findings included agenesis of the olfactory stalk and bulbs, hypoplastic optic nerves and chiasm, fusion of the frontal lobes, agenesis of the septum pellucidum and tela choroidea over the third ventricle, agenesis of the rostrum of the corpus callosum, dilatation of the lateral ventricles, and a small

third ventricle. Translocation probably occurred in the post-zygotic stage as the result of chromatid arm interchange and subsequent segregation. (18 refs.) - A. C. Molnar.

Los Angeles County
General Hospital
1200 North State Street
Los Angeles, California 90033

752 Marden, Philip M., & *Yunis, Jorge J. Trisomy D_1 in a 10-year-old girl. American Journal of Diseases of Children, 114(6):662-664, 1967.

Normal fetal hemoglobin and virtual absence of multiple neutrophil nuclear projections (MNNP) is reported in a 10-year-old girl (the oldest known) with D_1 trisomy syndrome. The S was born (birth weight 2,835 gm) following a full-term uncomplicated pregnancy. The mother was 30 years old, the father was 42, and their 4 other children were normal. The S had a patent ductus arteriosus, a left polycystic kidney with absent ureter and hydronephrosis, and bilateral cleft lip and palate. When presented at age 10 years she weighed 14.6 kg with a height of 101.6 cm and a head circumference of 45.5 cm. Examination showed intermittent exotropia, ostium secundum type septal defect, microcephaly, capillary hemangioma on the forehead and back of the neck, bilateral cubitus valgus, ankylosis of the second and third phalangeal joints of all fingers, hyperconvex fingernails, retroflexible thumbs, pectus carinatum, scoliosis, and rocker-bottom feet. She walked only with assistance, seemed able to hear, communicated with gestures and sounds but without speech, and had an estimated IQ < 20. Only 3 percent of 1,000 neutrophils showed single drumsticks and only 2 cells had 4 nuclear projections. Hemoglobin F concentration was 0.5 percent (normal < 2). Chromosomal analyses disclosed a modal chromosome number of 47 and an extra D (13-15) chromosome. Tritiated thymidine labeling of 20 cells indicated 7 D chromosomes, 3 of which displayed late DNA replication of the lower half of the long arm. Although the MNNP and elevated levels of fetal hemoglobin characteristic of neonates are known to persist during the first few years of life in Ss with D_1 trisomy, there are reports that these decrease as CA increases. These observations, coupled with the fact that the 10-year-old S had a normal concentration of fetal hemoglobin and almost no MNNP, suggest that these hematologic features are manifestations of developmental immaturity and disappear with age. (9 refs.) - A. C. Molnar.

*Medical Genetics Division
University of Minnesota
Minneapolis, Minnesota 55455

753 France, N. E., Evison, P. G. H., Butler, L. J., Snodgrass, G. J. A. I., Crome, L., & Keith, C. G. Trisomy D_1(13-15) associated with XO/XY mosaicism. Journal of Medical Genetics, 4(2):134-138, 1967.

The first reported association of XO/XY mosaicism and trisomy D_1 (13-15) is that in a male infant having the usual features of trisomic syndrome, intersexuality, a sacral meningomyelocele, and Arnold-Chiari malformation. The infant died at 7 days of age. Necropsy findings included a small head, broad bulbous nose, a long upper lip, a flat occiput, pointed frontal region, microphthalmia, oval corneae, bilateral colobomata of the iris and choroid, lens opacities, short horizontal palpebral fissures, small mouth, high arched palate, notched tongue, micrognathia, low-set ears, minimal neck webbing, hypoplastic scrotum, no observable gonads, a rudimentary uterus, spade-like hands, talipes calcaneovalgus, cardiovascular anomalies, urogenital anomalies, and pneumonia. The brain showed an absence of olfactory bulbs, tracts and trigones. The right occipital cerebrum was soft, the midbrain was long and slit-like, and the corpus callosum was incompletely developed. Chromosomal studies done with peripheral blood demonstrated an additional chromosome that was either No. 13 or No. 14. (20 refs.) - R. Froelich.

Queen Elizabeth Hospital for
Children
Hackney Road
London, E.2, England

754 Brown, Robert K., Burdick, Claude O., Malone, H. John, & Wright, Yvonne M. Familial D/D translocation associated with trisomy 21. Journal of the American Medical Association, 202(1):60-62, 1967.

An 8-pound male infant with clinical mongolism found to have both trisomy 21 and familial D/D translocation is the second

known individual with this phenomenon. He exhibited flaccidity, prominent epicanthal folds, and hyperextensible extremities. His hands were broad with brachydactyly and a simian line. A sea-gull heart murmur was present. Karyotype of the infant showed 46 chromosomes with trisomy 21 and an extra metacentric chromosome resembling chromosome No. 3. Karyotype of all available members of the family showed a D/D translocation carrier state present in his maternal grandmother, mother, and one brother, all of whom were phenotypically normal. His mother had 2 spontaneous abortions without recognizable fetal tissue. Four other instances of chromosomal disorders associated with D/D translocation within a single family were found in the literature. This association could be secondary to a basic defect in meiosis, but further investigation will be needed to determine if a significant association exists. (12 refs.) - R. Froelich.

725 North Street
Pittsfield, Massachusetts 01201

755 Lowry, R. B., Corey, Margaret J., & Maclean, J. R. 17-18 trisomy in a Japanese infant. Canadian Medical Association Journal, 96(24):1580-1581, 1967.

A female Japanese infant who died at 3½ months of age had cytogenetic, dermatoglyphic and clinical evidence of a 17-18 trisomy syndrome. The mother was 42 years of age. Clinical findings included hypotonia, low-set ears, dark body hair, systolic murmur, enlarged liver, enlarged clitoris, overlapping second finger, failure to thrive, and congestive heart failure leading to death. Autopsy revealed numerous cardiac defects and a double ureter. The clinical suspicion of 17-18 trisomy was confirmed by dermal patterns and further documented by chromosomal analysis. Only 2 other Japanese children have been reported to have trisomy 17-18, but there is no other reason to assume that this disorder is less frequent in Orientals than in other racial groups. To the inexperienced observer, the Oriental face is not too different from that of an Oriental mongoloid; this may cause difficulty in diagnosis. Dermatoglyphic patterns can be most useful in diagnosing autosomal trisomic syndromes. (7 refs.) - R. Froelich.

Division of Medical Genetics
University of British Columbia
715 West 12th Avenue
Vancouver 9, B. C., England

756 Alter, Milton, & Schulenberg, Robert. Dysplasia of epidermal ridges in a trisomy 18/normal mosaic. Developmental Medicine and Child Neurology, 9(5):582-587, 1967.

A 1-year-old girl with a trisomy 18/normal mosaic demonstrated a number of anomalies, including abnormal dermatoglyphics, which were more prominent on the left side of the body. Her mother was 36 years of age and her 7 siblings were normal. The patient demonstrated plagiocephaly, a small left eye, ellipsoid pupils, strabismus, myopia, a small left-sided hemangioma, a low-set left ear, tortiocollis, interventricular septal defect, small left labium majus, a left dorsal scoliosis, limited abduction of the hips, duplication of the ureters and ureteral pelvis on the left, and a short, deformed left foot. Neurological findings included increased muscle tone, head lag, and symmetrically dilated ventricles. Chromosome cultures from both sides of the body showed the same mosaic pattern. There were poorly developed dermatoglyphics on the fingers, palms, toes and hallux, all of which were more striking on the left side. A transitional simian line was present on the left palm but not on the right. The disrupted ridges on the left side in this patient might have been caused by a preponderance of trisomic elements on that side, but this was not supported by skin cultures. (27 refs.) - R. Froelich.

Department of Neurology
University of Minnesota
Minneapolis, Minnesota 55455

757 Van Kempen, C. A mentally retarded boy with multiple congenital anomalies and aberrant morphology in a No. 18 chromosome. Developmental Medicine and Child Neurology, 9(5):617-624, 1967.

A 15-year-old MR boy with multiple congenital anomalies and an extended long arm of chromosome 18 demonstrates a previously unknown abnormality. Feeding in infancy was difficult because of poor sucking and frequent episodes of cyanosis. He developed a mandibular luxation, kyphoscoliosis, and chronic otitis media. He sat at 5 years, walked at 6 years, and acquired some speech at 7 years of age. Physical features included a prominent occiput, hypertonus, low-set ears, high arched palate, micrognathia, short neck, widely spaced nipples, pectus excavatum, urogenital anomalies, small pelvis, polydactyly,

syndactyly, thenar hypoplasia, and anomalies of the feet. Other abnormalities included macrodontia, hypogenitalism, and failure to thrive. The EEG was abnormal. The karyotype showed an E-group chromosome missing and frequent conspicuous satellites in the 13-15 group in addition to the abnormality of No. 18. Both of the parents' karyotypes were normal. Dermatoglyphic characteristics were different from known trisomies. Comparison of the symptoms with those of 3 known autosomal trisomics (13-15, 17-18, and 21-22) showed that much overlap exists between this case and 13-15 trisomy. (16 refs.) - R. Froelich.

Institute for Mentally Retarded
Children
Huize 'Maria Roepaan'
Ottersum, The Netherlands

758 Palmer, Catherine G., Fareed, Nuzhat, & Merritt, A. Donald. Ring chromosome 18 in a patient with multiple anomalies. Journal of Medical Genetics, 4(2):117-123, 1967.

A 10-year-old boy with MR, microcephaly, a speech defect, unusual facies, and other anomalies was found to have a ring chromosome 18 in the majority of leukocyte and skin cells cultured. Other clinical abnormalities included a webbed neck, low posterior hairline, hypertelorism, exotropia, nystagmus, an anti-mongoloid slant, low-set ears, prominent supraorbital ridges, broad-bridged upturned nose, fissured tongue, cardiomegaly, protuberance of the anterior chest, hepatomegaly, limited elbow-extension, hyperextensile and spade-like hands, ulnar deviated wrists, broad palms, short fingers, stork-like lower extremities, planovalgoid feet, pulmonary osteoarthropathy, bilateral vertical talus, subluxation of the radioulnar joint, and other anomalies. Of 146 leukocytes cultured, 121 had 46 chromosomes, one of which was a ring in place of an absent chromosome 18. Fourteen cells had 45 chromosomes, 13 of which had a ring chromosome, 1 18 chromosome, and random loss of other chromosomes. Fibroblast cultures showed 18 cells, all with the ring chromosome. Reports of other patients with a ring chromosome 18 indicate that MR is a constant finding. The patient exhibits characteristics common to 2 snydromes manifested by deletions of the long arm or short arm of chromosome 18. This suggests loss of segments of both long and short arms. (46 refs.) - R. Froelich.

Department of Medical Genetics
Indiana University School
of Medicine
Indianapolis, Indiana

759 Reisman, Leonard E., Darnell, Amanda, Murphy, John W., Hall, Bryan, & Kasahara, Shoichi. A child with partial deletion of a G-group autosome. American Journal of Diseases of Children, 114(3):336-339, 1967.

A 3-year-old MR boy (IQ, 22) with developmental retardation, hypotonia, possible aortic valvular stenosis, and other abnormalities was found to have a partial deletion of a G-group chromosome from skin, bone marrow, and blood examination. He developed recurrent seizures during the first 2 years of life; these became grand mal seizures at age 2. He had large, low-set ears, hypertelorism, bilateral epicanthal folds, high-arched palate, partial syndactyly of 2 toes, keloids and cardiac findings suggestive of aortic stenosis. Dermatoglyphics were normal, and an EEG was moderately abnormal. Leukocyte cultures showed a small centric fragment which replaced a chromosome in the G-group. Similar findings were demonstrated on bone marrow and fibroblast culture. The parents had a normal karyotype. The child died following an accidental burning. Although an accurate differentiation between chromosome 21 and 22 could not be made, chromosome 22 was selected as the small deleted acrocentric chromosome in this case. (11 refs.) - R. Froelich.

226 East Chestnut Street
Louisville, Kentucky 40202

760 Van Gelderen, H. H., Gaillard, J.L.J., & Schaberg, A. Trisomy G/normal mosaics in non-mongoloid mentally deficient children. Acta Paediatrica Scandinavica, 56(5):517-525, 1967.

A cytogenetic study conducted with institutionalized MR children to detect clinical and cytogenetic findings in cases of trisomy G mosaicism (TGM) suggested that the disorder may be more common than previously thought. No clinically obvious cases of Down's syndrome (DS) were included in the study. Peripheral white blood cells (WBC) were cultured and their chromosomes studied. WBC alkaline phosphatase (AP) and granulocyte lobe count (GLC) were compared with those of controls, who consisted of clinically typical DS and cerebral damaged MR children. TGM was found in 9 cases - virtually always in cells with 47 chromosomes. Physical features of the cases found were variable, but most of them had malformations usually present in DS. Short stature and severe MR were always present. TGM cases had higher WBC AP levels than the 2 control groups, but the GLC was intermediate. Both results were statistically significant. While the extra chromosome is considered to be a member of the G

(21-22) group, morphological similarities make it difficult to state which it is. Review of the literature illustrated this point. Factors suggesting the chromosome to be 21 included the higher maternal age at birth and increased AP levels both of which agreed with past studies as well as the intermediate GLC. While the location of genes for certain enzymes has been thought to be present on the 21 chromosome, studies pointed to a basic WHC abnormality in DS, rather than a gene dosage effect, as being responsible for the increased enzyme activity found. TGM appears to be dependent upon maternal age similar to that of DS, since past studies in DS patients born to young mothers have shown no mosaicism. Loss of the extra chromosome in original trisomic zygotes appears to be the most likely etiological hypothesis. The number of patients with TGM was higher, in comparison to those with DS, than was indicated in past studies; therefore, TGM may be more common than was it was thought to be. (36 refs.) - E. Gaer.

Department of Pediatrics
Academisch Ziekenhuis
Leiden
The Netherlands

761 Hecht, Frederick, & Weleber, Richard G. Trisomy 21 or 22 in Down's syndrome? Lancet, 2(7513):467, 1967.

Leucocytes from a patient with a ring-G chromosome were labeled with 1 μC/ml tritiated thymidine for 6 hours before harvesting. No consistent autoradiographic relation of the ring-G to the 3 structurally normal G chromosomes was observed. Data do not indicate regular homologue asychrony but suggest that the terminal phases of DNA synthesis in the G chromosomes are too close for differentiation. (4 refs.) - J. Snodgrass.

University of Oregon Medical School
Portland, Oregon 97201

762 Huang, S. -W., *Emanuel, I., Lo, Judy, Liao, S. -K., & Hsu, C. -C. A cytogenetic study of 77 Chinese children with Down's syndrome. Journal of Mental Deficiency Research, 11(3):147-152, 1967.

The relative frequency of trisomy G, translocation, and mosaic trisomy G is the same in Chinese Ss with Down's syndrome as in other ethnic groups. Cytogenetic studies of peripheral leukocytes were done on 77 Ss (29 female, 48 male) with Down's syndrome (newborn to 19 yeas of age). Average maternal age of the 72 Ss with trisomy G was 33 years, compared to 27.5 years for the overall national births. Trisomy G was present in 72 (94.8 percent), D/G translocation in 2 (2.6 percent), G/G translocation in 1 (1.3 percent), and mosaicism (normal/trisomy G) in 1 (1.3 percent). All factors studied did not differ significantly from data reported from other countries. (14 refs.) - W. A. Hammill.

University of Washington
Seattle, Washington 98105

763 Rosner, Fred. Dermatoglyphic and biochemical comparisons of trisomic and translocation Down's syndrome (mongolism). Clinical Proceedings of Children's Hospital of the District of Columbia, 23(2):55-58, 1967.

Comparisons between 12 translocation mongols and 12 matched trisomic mongols revealed no essential differences of dermatoglyphic patterns but did show a number of biochemical differences that can be used to simply, inexpensively, and accurately differentiate between these 2 types of disorders. Except for increased plasma creatine phosphokinase, all biochemical determinations in the translocation mongoloids were normal. The trisomy mongoloids demonstrated a decrease in blood serotonin and increases in blood galactose-1-phosphate-uridyl transferase, erythrocyte and leukocyte galactose-1-phosphate-uridyl transferase, erythrocyte glucose-6-phosphate dehydrogenase, leukocyte alkaline phosphatase, leukocyte acid phosphatase, leukocyte 5-nucleotidase, plasma creatine phosphokinase, and plasma hydroxyproline. The reason for these differences between the 2 types of mongolism is not clear. The "triple dose" enzyme theory can explain some but not all the differences. Another possibility is a deletion of a part of a chromosome in the process of translocation that inhibits normal gene action. Normal genetic homeostasis depends on structural and regulating genes, and mongolism of all types represents an alteration of this homeostasis. (7 refs.) - R. Froelich.

Maimonides Hospital
Brooklyn, New York

764 Cowie, Valerie. Neurological aspects of the early development of mongols. Clinical Proceedings of Children's Hospital of the District of Columbia, 23(2):64-81, 1967.

Sixty-three mongoloids followed neurologically revealed changes caused by hypotonia and persistence of reflexes beyond the normal

age for their disappearance. Infants were taken from the general population and not from institutions. A total of 188 neurological examinations were done on infants ranging from newborns to 47 weeks of age. The muscular hypotonia found in every case decreased in severity as age increased. Although limp in comparison to that of normals, the posture in ventral suspension gradually improved with age. All infants displayed a depressed traction response during the neonatal period, and 49 percent still had a deficient traction response at 40 weeks of age. There was some retardation in the dissolution of the Moro reflex - particularly in the 2 to 14-week-old infants. The palmar grasp reflex and the plantar grasp reflex persisted longer than normal. The automatic stepping reflex was not suppressed in these patients. This supports the view that this reflex is not influenced by hypotonia. A more fundamental knowledge of the neuropathological findings in mongolism is needed before an explanation of these findings can be made. (17 refs.) - R. Froelich.

The Maudsley Hospital
London, England

765 Seppäläinen, A. M., & Kivalo, E. EEG findings and epilepsy in Down's syndrome. Journal of Mental Deficiency Research, 11(2):116-125, 1967.

Abnormal electroencephalographic (EEG) records were found in 73 percent of 92 Finnish mongoloids. The degree of MR was SMR in 37 percent, TMR in 48 percent, EMR in 5.4 percent, and not defined in 9.6 percent. Congenital heart disease was present in 20.6 percent, and distinct epileptic seizures occurred in 8.7 percent. The EEG records were completely negative in only 12 percent. A diffuse disturbance was present in 82 percent, and paroxysmal activity was found in 21 percent. Other EEG findings included spike wave discharges in 4.3 percent, subcortical discharges in 17 percent, episodic disturbances in 16 percent, high-frequency activity in 13 percent, and rhythmic alpha activity in 73 percent. Epilepsy was more frequent in those mongoloids with congenital heart disease and profound MR. Although only 12 percent had normal EEG records, this is higher than the 1 to 2 percent normal EEGs found in the entire institutional population. Mongoloids do not appear to be protected from epilepsy. The diffuse EEG activity is probably due to retarded brain development. (28 refs.) - R. Froelich.

Rinnekoti Research Department
University of Helsinki
Helsinki 29,
Haartmaninkatu 4, Finland

766 Solitare, G. B., & Lamarche, J. B. Brain weight in the adult mongol. Journal of Mental Deficiency Research, 11(2): 79-84, 1967.

Post mortem examinations of 18 mongoloids between 20 and 67 years of age showed that their brain weights were generally lower than those of normal Ss or of MRs with other etiology. The brain weights ranged from 850 to 1,340 gm. While the range in 18 adult mongoloids selected from the literature was from 910 to 1,370 gm, the following mean brain weights were obtained by classifying the data according to age: 1,155 gm for the 20-29 age group, 1,161 gm for the 30-39 group, 1,068 gm for the 40-49 group, 1,072 gm for the 50-59 group, and 1,010 gm for the 60-69 group. These findings were compared with the brain weights of normal and MR cases derived from 8 sources in the literature. Although no clearly discernible patterns emerged, there were indications that brain weight decreases with increasing age and is lower in female than in male mongoloids. Except for females in the third and fourth decade, the mongoloid brain weights were less than those of MRs with other etiology or those of normal Ss. The possibility that early senility affects the adult mongoloid brain could explain these findings. (15 refs.) - R. Froelich.

Department of Pathology
Yale University School of Medicine
New Haven, Connecticut

767 Sergovich, Fred R., Luce, Anna, & Carr, David H. Chromosome aneuploidy in the father of a mongol. American Journal of Diseases of Children, 114(4):407-411, 1967.

The father of a typical trisomy G Down's syndrome offspring was found to have a

mosaic for 3 extra chromosome fragments. Karyotype of the mother (age 32) was normal. The clinically normal father (age 30) had 3 extra metacentric satellited chromosomal fragments in the preponderant cell line. The postulated mechanism is a series of reciprocal translocations of satellited chromosomes containing few or no genetic factors and thus producing no clinical defects. These extra fragments may influence the rate of non-disjunction of other chromosomes (producing a trisomy G offspring) or may reflect a familial tendency toward chromosomal instability. Paternal chromosomal abnormalities may play a role in age-independent Down's syndrome. (21 refs.) - W. A. Hammill.

Terminal "A"
P. O. Box 2460
London, Canada

768 Richards, B. W. Down's syndrome and parental consanguinity. Developmental Medicine and Child Neurology, 9(3):351-352, 1967. (Annotation)

Of the third of all mongoloids with etiology independent of maternal age, the majority are standard trisomics born to parents with normal chromosome complements. If, of several possible factors, a rare recessive gene acted to cause non-disjunction in the ova of homozygous females, then a raised consanguinity rate would be expected in the maternal grandparents. Several studies have not produced convincing evidence, but the existence of a genetic factor cannot be excluded due to the greater-than-chance frequency of familial cases and trisomy involving different chromosomes in different members of the family. (6 refs.) - J. Snodgrass.

St. Lawrence's Hospital
Caterham, Surrey, England

769 Richards, B. W. Mongolism: The effect of trends in age at childbirth on incidence and chromosomal type. Journal of Mental Subnormality, 13(1):3-13, 1967.

Evaluation of population data in England and Wales in accordance with the incidence figures of Collmann and Stoller demonstrated that the appreciable reduction in the incidence of mongolism (ratio of mongol to non-mongol birth) can be attributed to the known trend toward decreasing maternal age at birth. Between 1931 and 1964 the mean maternal age decreased by over 2 years, and the number of mongols born decreased by 22 percent, with the over-all incidence decreasing from 1 in 620 births to 1 in 795 births. Because the mortality rate for mongols has decreased, however, the prevalence of the disorder has increased. The mean maternal age of mongol births dropped from 34.8 to 32.5 years. Since the maternal age of mongol births has been shown to be bimodal with the younger mothers having age-independent mongols, a greater proportion of this type of mongolism is to be expected in the mongol population in the future. For this reason the rarer chromosomal anomalies will by proportion be more frequent. (12 refs.) - R. Froelich.

St. Lawrence's Hospital
Caterham, Surrey, England

770 Mantel, Nathan, & Stark, Charles R. Paternal age in Down's syndrome. American Journal of Mental Deficiency, 71(6): 1025, 1967. (Letter)

Statistical interpretation of previously reported data on paternal age in Down's syndrome (DS) should be that, due to the high intercorrelation between maternal and paternal age, the effect of paternal age may have been subsumed in considering DS incidence. Far more extensive data is needed before one rules out an important paternal age effect. (3 refs.) - J. Snodgrass.

National Cancer Institute
National Institutes of Health
Bethesda, Maryland 10014

771 Jenkins, Richard L. Comment on "Paternal age in Down's syndrome." American Journal of Mental Deficiency, 71 (6):1026, 1967. (Letter: Comment on letter by Nathan Mantel and Charles R. Stark)

Although maternal age is established as an important factor, the incidence of Down's syndrome tends to be associated with diminishing fecundity, suggesting but still not proving that paternal age is without effect. If the effect is ascribed to maternal age, it is unnecessary to ascribe any of the effect to paternal age. (No refs.) - J. Snodgrass.

State Psychopathic Hospital
University of Iowa
500 Newton Road
Iowa City, Iowa 52241

772 Chapman, M. J., Donoghue, E. C., Saggers, B. A., & Stern, J. Parotid saliva sodium in Down's disease. Journal of Mental Deficiency Research, 11(3):185-193, 1967.

Analysis of sodium concentration in parotid salivary secretions and sweat demonstrated that the content in saliva was 2½ times higher in 33 Ss with Down's syndrome (DS) than it was in 33 SMRs of other etiology or in 17 normal adults. Saliva sodium levels were measured with a sodium-responsive electrode placed near Stensen's duct. Average sodium concentration in unstimulated parotid secretion was 26.1 mEq/l (range 5.8-90.0) in DS Ss, 5.9 (range 3-15) in normals, and 10.4 (range 4.5-42.0) in SMRs. Saliva pH of the Ss with DS was only 3 percent higher than that of the SMRs; however, the difference was significant (X^2, $p < .01$). In 13 Ss with DS, sweat sodium collected after pilocarpine iontophoresis was normal. The inability of the salivary glands to reabsorb sodium in DS Ss may be a membrane manifestation of the generalized defect seen in trisomic cells. (17 refs.) - W. A. Hammill.

Queen Mary's Hospital
for Children
Carshalton, Surrey, England

773 Bazelon, Mary. Serotonin metabolism in Down's syndrome. Clinical Proceedings of Children's Hospital of the District of Columbia, 23(2):58-63, 1967.

In mongoloids, depressed blood serotonin levels are found, while all other enzymes and metabolites show elevated levels. Serotonin levels are decreased significantly in newborn animals and roughly correspond with the relative maturity of the animal. A number of explanations for the depressed tryptophan metabolism in normal newborns have been proposed, but the reason still is unclear. Although investigators have agreed that serotonin metabolism is altered in Down's syndrome, a number of conflicting findings about specific results have occurred. Proposed theories include: (1) acceleration of the kynurenine pathway with secondary decreases in other pathways by a "triple enzyme dose," (2) a "triple enzyme dose" of an inhibitor gene, (3) a tendency in mongoloids for pyridoxine depletion, and (4) an altered transport mechanism. The significance of decreased serotonin in mongoloids is still unknown. (20 refs.) - R. Froelich.

George Washington University
School of Medicine
Washington, D. C.

774 Smith, G. F., Penrose, L. S., & O'Hara, P. T. Crystalline bodies in lymphocytes of patients with Down's syndrome. Lancet, 2(7513):452-453, 1967.

Unusual crystalline bodies were found in the lymphocytes of 8 mongoloids. The bodies were observed by electron microscope in only a small proportion of lymphocytes. One of 8 controls also demonstrated these formations, and they were found more frequently in older individuals. Averaging 12,000 angstroms in length, the bodies were rectangular in shape and had rounded edges. Usually only 1 was found per cell. They had parallel linear markings and sometimes appeared like a lattice. Although the composition of these bodies was not determined, it seemed likely that they were composed of protein. The crystals were not surrounded by a membrane or reticulum and merged with the cytoplasm. Similar structures have been described in leukemia, but none of these patients had this disorder. The origin of the bodies could be from viruses and represent inclusion bodies. They could also occur as a consequence of abnormal metabolism from the trisomy. (10 refs.) - R. Froelich.

Kennedy-Galton Centre
Harperbury Hospital
Hertfordshire, England

775 Bias, Wilma, & Migeon, Barbara. Blood-group chimaerism with Down's syndrome. Lancet, 2(7509):257, 1967. (Letter)

A case of male Negro dizygotic twins born prematurely to a type O, Rh-positive mother and AB, Rh-positive father is reported. Down's syndrome was diagnosed in twin A at 7 months, while twin B appeared normal. Isoagglutinin deficiency was found in twin A and was explained by blood-group chimerism. (7 refs.) - J. Snodgrass.

Immunogenetics Laboratory
Johns Hopkins University
Baltimore, Maryland 21200

776 Richards, B. W. Blood enzymes in trisomic and translocation mongols. Developmental Medicine and Child Neurology, 9(3):353, 1967. (Annotation)

When 6 enzymes were estimated in the plasma of 12 trisomic and 12 translocation mongoloids and matched controls, it was found that the hydroxyproline levels were raised in the trisomics, the creatine phosphokinase levels were raised in both types, and the leucine

aminopeptidase, fructose aldolase, isocytric dehydrogenase and glutamic pyruvic transaminase levels were normal. Previous studies have produced no differences in trisomic and translocation mongols in respect to clinical, psychological, and radiological features or in respect to blood serotonin levels. (9 refs.) - J. Snodgrass.

St. Lawrence's Hospital
Caterham, Surrey, England

777 Appleton, M. D., Haab, W., Burti, U., & Casagrande, D. Quantitative evaluation of mongoloid gamma-globulins. American Journal of Mental Deficiency, 72(3):482-486, 1967.

This study indicates that the known differences in serum gamma-globulins found in mongoloids when compared to normal individuals are, at least in part, quantitative. Utilizing the Oudin diffusion technique, the 7S immuno-globulin fraction concentration is lower than normal in mongoloids and the 19S fraction is normal. In view of the known elevated levels of gamma-globulin in institutionalized mongoloids, a possibility of a large, non-immune gamma-globulin fraction exists. (11 refs.) - (Source: AJMD).

Department of Chemistry
University of Scranton
Scranton, Pennsylvania 18500

778 Miller, Michael E., Mellman, William J., Oski, Frank A., Kohn, Gertrude. Immunoglobulins in Down's syndrome. Lancet, 2(7509):257-258, 1967. (Letter)

IgA, IgM, and IgG levels were studied in 16 newborns with Down's syndrome (trisomy 21) and 10 controls. Significantly lower levels of IgG were found in the Down's syndrome group, possibly due to: (1) low IgG levels in mothers of Down's syndrome babies, (2) decreased placental transport of IgG, or accelerated fetal catabolization of maternal IgG. (5 refs.) - J. Snodgrass.

University of Pennsylvania
School of Medicine
Philadelphia, Pennsylvania 19100

779 Harris, F., & Koutsoulieris, E. Hypothyroidism due to auto-immune thyroiditis in a young child with Down's syndrome. Archives of Diseases in Childhood, 42(224): 449-452, 1967.

Auto-immune thyroiditis caused severe hypothyroidism in a S with Down's syndrome (trisomy 21). At birth the S had typical features of Down's syndrome, and cytogenetic studies revealed trisomy 21 (maternal karyotype was normal). Development was uneventful until age 2 years when the first signs of hypothyroidism were noted. At age 3 years 10 months, the protein bound iodine was 2.5 μg/100 ml, cholesterol 1,250 mg/100 ml, and the serum was positive for thyroid antibodies (colloid and cytoplasmic). She improved markedly with thyroid replacement therapy. High titers of thyroid antibodies are common in Down's syndrome, but symptomatic hypothyroidism from auto-immune thyroiditis is rare. (28 refs.) - W. A. Hammill.

University of Sheffield
Sheffield, England

780 Fialkow, Philip J. Thyroid antibodies, Down's syndrome, and maternal age. Nature, 214(5093):1253-1254, 1967.

The Seattle-Winnipeg study has been expanded to 242 mothers of patients with Down's syndrome. Of these, 29 percent had positive sera, compared with 16 percent of an equal number of controls matched by age and sex. To investigate whether maternal seropositivity is correlated with one or the other of the age groups, the author has analyzed results in relation to maternal age at the time of birth of the propositus, using a method suggested by Penrose. While the basis for the relationship between maternal thyroid antibodies and Down's syndrome remains uncertain, the effect seems to be almost confined to the younger mothers. This group has a relatively high frequency of mosaicism, familial trisomy 21, and translocations, suggesting that the seropositive effect is more important in the more unusual chromosomal abnormalities. Karyotypic studies, as yet incomplete, tend to support this. (7 refs.) - (Source: Journal of the American Medical Association, 201(6):276, 1967).

Department of Medicine
University of Washington
Seattle, Washington

781 Engel, Eric. Autoantibodies and chromosomal aberrations. Lancet, 1 (7502):1271-1272, 1967. (Letter)

Fifty patients with gonadal dysgenesis - including 30 with the XO pattern who averaged 27 years of age and 20 averaging 34 years of age with an X-isochromosome or sex-chromosome mosaicism - were tested for thyroglobulin antibodies. Detectable titers were found in 23 Ss, including 15 of the XO patients and 8 of the latter group. In a series of 37 Down's syndrome patients (20 females and 17 males), 14 were seropositive for thyroglobulin antibodies. (5 refs.) - J. Snodgrass.

Vanderbilt University
School of Medicine
Nashville, Tennessee 37203

782 Dallaire, L., & Kingsmill-Flynn, D. Infectious hepatitis and Down's syndrome. Lancet, 2(7513):467, 1967. (Letter)

Sera obtained from 213 patients between 2 and 68 years of age, 133 with acute infectious hepatitis and 80 with subclinical forms of the disease, were tested for thyroid antibodies and matched with sera from normals. Antibody levels were significantly increased for the Ss with infectious hepatitis and even higher for those studied from 3 months to 2 years after onset of the disease and after liver-function tests had returned to normal. Therefore, births of aneuploid children would not take place necessarily 9 months after an epidemic, and inconsistent correlations between the 2 events are understandable. (6 refs.) - J. Snodgrass.

Douglas Hospital
Montreal 19, Quebec, Canada

783 Ong, Beale H. Clinical comparisons of trisomic and translocation Down's Syndrome (mongolism). Clinical Proceedings of Children's Hospital of the District of Columbia, 23(2):49-54, 1967.

Clinical, radiological, and psychological studies of 12 translocation mongoloids and 12 trisomy mongoloids revealed no significant differences between them. Attempts were made to match the 2 groups for age, sex, and race. The translocation group consisted of 8 D/G and 4 G/G translocations. There were no significant differences in history except for a significantly lower maternal age in the translocation mongoloids and 3 instances of thyroid administration to the pregnant mothers of trisomy mongoloids. Physical examination revealed few differences that could be used to differentiate the groups. Simian lines were present in 7 trisomic mongoloids and 3 translocation mongoloids. All Ss were MR, with the Stanford-Binet IQ ranging from 20-69. No psychometric differences were found. The iliac index was lower in translocation mongoloids except for 3 cases. Three siblings with a D/G translocation were different in some respects from other mongoloids and may represent a difference in type or amount of chromosome material translocated. They had a slightly lower serotonin level than other translocations. The inability to find valid distinguishing characteristics is surprising in the light of current biochemical findings. (10 refs.) - R. Froelich.

Children's Hospital
George Washington University
School of Medicine
Washington, D. C.

784 Punnett, Hope H., & DiGeorge, Angelo M. Down's/mosaic-Klinefelter's syndrome. Lancet, 2(7516):617, 1967. (Letter)

Case material is provided on a heretofore unreported combination of a D/21 translocation and XY/XXY mosaicism in the fourth child of a 34-year-old mother and 40-year-old father, both with normal karyotypes. Typical Down's syndrome was apparent at 6 months. Chromosomal analysis of peripheral blood revealed 2 cell lines: 46 chromosomes with D/21 translocation and 47 chromosomes with D/21 translocation and an extra X chromosome. (2 refs.) - J. Snodgrass.

Temple University School
of Medicine
Philadelphia, Pennsylvania 19133

785 Genest, Paul, Bouchard, Marc, & Bouchard, Joachim. A satellited human Y chromosome. Lancet, 1(7502):1279-1280, 1967. (Letter)

A 25-year-old male with Down's syndrome has a trisomic chromosome 21 and a Y chromosome with achromatic filaments terminating in euchromatic small knobs attached to the end

of the long arms. Similar Y chromosomes were found in the phenotypically normal father, brother, paternal uncle, and nephew. (1 ref.) - J. Snodgrass.

Department of Pathology
Faculty of Medicine
Laval University
Quebec, Canada

786 Degenhardt, K. H., & Franz, J. Cytogenetic studies in mongolisms and other development disorders. German Medical Monthly, 12(7):338-341, 1967.

Of 201 patients with congenital abnormalities, 60 had numerical or structural chromosomal anomalies of a numerical or structural nature. Fifty-eight were autosomal anomalies and included complete G-trisomy (43), mosaic of G-trisomy (9), mosaic of G-trisomy with more than 20 percent G-trisomy (6), A_1 aberrations in all mitoses (1), D/D translocation in all mitoses (1), D/D translocation in 2 out of 30 mitoses (1), and polymorphic chromosomal aberrations (3). The 2 patients with sex chromosome anomalies included 1 with XO/XX_1 mosaicism and 1 with XXXY/XXY/XY mosaicism. Family studies in 37 cases with G-trisomy or G-trisomy mosaicism found 2 fathers and 1 mother with a few G-trisomy mitoses. One case with complete G-trisomy did not have clinical features of mongolism. Of 9 patients with G-trisomy mosaicism, 4 were MR, and 4 were unmistakably mongoloids. An individual with polymorphic chromosomal aberrations had MR, dolicocephaly, an "antimongoloid" inclination of the eyelid clefts, and other anomalies. The mother of 1 boy with an A_1 aberration had the same anomaly in a few of her mitoses. (No refs.) - R. Froelich.

Institute of Human Genetics
and Comparative Heredity
Frankfurt/Main, Germany

787 Züblin, W. A new dilemma. Lancet, 2(7516):615, 1967. (Letter)

The relationship between chromosomal aberrations and criminality has not been established; however, some impaired brain function does follow from XO, XXY, and XXX syndromes. In the case of YY males, this impairment often leads to faulty personality development, brain-damage syndrome, and retardation. Since the behavioral disorder of these aberrations may be due to environment rather than heredity, it is thought wise not to inform the parents regarding the relationship between YY and personality. (1 ref.) - J. Snodgrass.

No address

788 Sachsse, W., Overzier, C., & Knolle, J. Eine sonderform des Klinefelter-Syndroms: Mosaik mit verdoppelung des Y-chromosoms (2X-2Y-form). (An unusual form of Klinefelter's syndrome: Mosaic with doubling of the Y chromosome (2X-2Y form)). Deutsche Medizinische Wochenschrift, 92(27):1213-1220, 1967.

Two patients with Klinefelter's syndrome showed certain unusual signs of testicular degeneration, atypical skin creases, IQs of over 100, and occasionally increased psychomotor activity and even psychopathic behavior. There was a chromosomal mosaic 44 XXY/XXYY with definite predominance of the XXYY portion. This special form is extremely rare: similar reported cases are briefly presented. It is recommended that patients with this karyotype be labeled as 2X-2Y form of Klinefelter's syndrome. (76 refs.) - (Source: Journal of the American Medical Association, 201(6):261, 1967).

Institut für Genetik
der Universität
65 Mainz
Saarstr. 21
Germany

789 Frøland, Anders. Seasonal dependence in birth of patients with Klinefelter's syndrome. Lancet, 2(7519):771, 1967. (Letter)

Case material is presented on the birth month of 80 patients with Klinefelter's syndrome. A non-significant excess was found for May and October. (1 ref.) - J. Snodgrass.

Institute of Medical Genetics
Copenhagen N., Denmark

790 Franks, Robert C., Bunting, Kenneth W., & Engel, Eric. Male pseudohermaphrodism with XYY sex chromosomes. Journal of Clinical Endrocrinology and Metabolism, 27 (11):1623-1627, 1967.

An instance of male pseudohermaphrodism with XYY sex chromosomes was found in a phenotypically normal infant female. On initial referral the child suffered from seizures and was reported to have normal growth but slow motor development. Physical examination revealed hypertelorism, dry skin, incurved fifth fingers, slightly enlarged clitoris, separate normal urethral and vaginal orifices, and palpable labial gonads. Other abnormalities found were a simian crease on 1 hand, arches on all fingers, and a blind vaginal pouch. Cattell Infant Intelligence Scale IQ was 60 at 30 months of age. Gonadectomy at 38 months of age revealed normal appearing testes. Histological sections revealed most of the tubules to be small and devoid of germ cells. Chromatin bodies were absent in buccal smears. An extra Y chromosome was found in 250 of 284 cells studied from bone marrow, peripheral blood, skin fibroblasts, and the right testis. XY and other patterns were also found but no XO. The variety of clinical manifestations of the XYY genotype suggests a heterogeneous population in which the effect of the extra Y chromosome cannot be predicted. XO/XYY mosaicism with possible regressing of XO cells or small deletions of vital genetic material on a defective Y chromosome could explain the varied clinical manifestations found in these patients. (15 refs.) - E. Gaer.

Department of Pediatrics
Vanderbilt University
School of Medicine
Nashville, Tennessee 37203

791 Ferrier, P. E., Ferrier, Simone A., Schärer, K. O., Genton, N., Hedinger, Chr., & Klein, D. Disturbed gonadal differentiation in a child with XO/XY/XYY mosaicism: Relationship with gonadoblastoma. Helvetica Paediatrica Acta, 22(5):479-490, 1967.

A 1-year-old MR infant with ambiguous genitalia and a gonad resembling gonadoblastoma was found to have an XO/XY/XYY chromosomal mosaicism, which supports the contention that gonadal malignancies are more frequent in individuals with abnormal gonadal development. The genitalia consisted of a small phallus, a bifid scrotum, 1 pea-sized gonad, a hydrocele, and an urethral opening in the scrotal cleft. A urethrogram showed the presence of a vaginal canal and a small uterus. Other abnormalities included a bilateral epicanthus, large low-set ears, a cardiac murmur, and diastasis recti. Growth and mental development were retarded and developmental milestones were delayed. A laparotomy was done to implant both ureters to the bladder, and a biopsy of an abdominal gonad and the scrotal gonad were taken. The scrotal gonad appeared to be of normal testicular tissue, with absence of spermatogonia. The abdominal gonad had poorly differentiated and disorganized testicular tissue with unusual proliferation of the germ cells. Although not entirely consistent with gonadoblastoma, the tissue had many similarities with this diagnosis. Karyotypes from peripheral leukocyte cultures were used to make the cytogenetic diagnosis. The literature regarding gonadal tumors in pseudohermaphrodites was reviewed. Gonadoblastomas are particularly frequent in pseudohermaphrodites with an XY or XO/XY karyotype. (36 refs.) - R. Froelich.

University of Washington
Seattle, Washington 98105

PROFESSIONAL SERVICES

792 Hurowitz, Robert. The physician. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 95-96.

For the physician there is no difference in the medical problems of a normal sick child and the one who is MR. Although science has found ways to prolong the life of mongoloids and research has been able to diagnose the kind of mongolism, treatment has not yielded formative results. Presently needed are methods for early diagnosis, treatment, and prevention. Guidance for the involved family and more intensive medical training in the area of MR are also needed. (No refs.) - G. Trakas.

793 Sicard, U. Les voies du dialogue "médecin-famille." (Conversations with the family doctor). Nos Enfants Inadaptes, 24(4):9-12, 1967.

Doctors need to become aware of their responsibility to give guidance and answer general questions for the family of the MR

child. For more complex problems, however, parents need a team of specialists who can provide them with specific information concerning developmental possibilities and can direct them to agencies designed to help. (No refs.) - C. A. Pepper.

No address

794 Hasitavej, Rasmee. Parents of mentally retarded children. Pediatrics, 39(6): 947-948, 1967. (Letter)

Since parental emotional reactions to bearing and institutionalizing an MR child are to be expected, physicians should exercise common sense, sincerity, and deep sympathy. When counseling with parents, some "high-hat" community physicians unfairly degrade institutional physicians, thereby causing considerable parental frustration. (No refs.) - J. Snodgrass.

Lynchburg Training School
and Hospital
Colony, Virginia 24537

795 Solomons, Gerald. The exceptional child: Medical responsibility. Texas Medicine, 63(11):46-51, 1967.

The exceptional child is one who differs from the average in such a way as not to benefit optimally from the general school program. He may be gifted, retarded, or physically and emotionally handicapped. The physician must act as an integral member of the child-care team comprised of school authorities, special diagnosticians, and the child's parents. He should be willing to aid these forces in directing and educating the parents to the benefits of a special education program. Effective and efficient communication between the members of the team is necessary to afford early diagnosis and therapy and thus avoid complicating the primary problem. (8 refs.) - W. A. Hammill.

University Hospital School
Iowa City, Iowa 52240

796 Kolmen, Barbara. A family pediatrician program in the training of pediatric residents. Journal of Pediatrics, 71 (5):742-747, 1967.

In order to acquire better preparation for practice, second-year pediatric residents provided complete care for children of students and house staff. The patients, although from a "normal population," exhibited several special disease problems including MR, Down's syndrome, cerebral palsy, psuedo-retardation, and neurologic and emotional problems. Routine conferences were held to discuss aspects of the program and specific patient situations. Families participating in the program were followed by the resident during the prenatal, delivery, postnatal, and childhood periods. When necessary, illnesses were treated in the hospital under the care of the resident involved. Families, faculty, and residents were generally very satisfied with the program because it provided better insight for the residents and better care for the patients. (11 refs.) - W. A. Hammill.

University of Texas
Medical Branch
Galveston, Texas 77550

797 Friedman, Jacob H. Importance of neurologic and psychiatric consultations in a general hospital. New York State Journal of Medicine, 67(2):2720-2725, 1967.

In order to improve the total care of patients and the educational program for its house staff, the neurology and psychiatry services of a general hospital were reorganized. Adult and child neurology clinics and a diagnostic psychiatric clinic were established and staffed by interns and residents, with neurologists and psychiatrist available for consultation. Furthermore, the latter saw a wide spectrum of neurological and psychiatric consultations on the in-patient services. Neurologists and psychiatrists gave a didactic lecture once a month to the house staff and took part in the weekly medical conference related to their respective specialities. The importance of neurology and psychiatry to the general hospital is indicated by the fact that during the first 20 months following reorganization, 14.7 percent of the 16,305 patients admitted were seen at least once in consultation by one of the other services. Also 1,786 patients were

seen by the house staff in the clinics, enabling them to gain knowledge of the diseases and their treatment. As a result of the scope of the program, the house staff was able to realize the importance of neurology and psychiatry in all aspects of the practice of medicine. (7 refs.) - E. Gaer.

1749 Grand Concourse
The Bronx, New York 10453

798. Jackson, Elgin F. Orthodontics and the retarded child. American Journal of Orthodontics, 53(8):596-605, 1967.

Orthodontic treatment of the MR child is discussed in terms of motivation, treatment plan, and chair procedure, and 4 clinical examples are described. The most frequent malocclusion encountered is the Class II, Division 1. Thumb-sucking and tongue thrusting habits are frequently responsible, since these habits persist longer in MRs. Congenital malformations and poor hygiene are more frequent, and tooth-grinding wears away surfaces. The malocclusion is usually severe by the time the child is brought to the orthodontist. The procedures should be kept simple in the extreme. Case 1 was a 12-year-old boy who had a Class II, Division 1 malocclusion, which was treated by extraction of the first 4 premolars. Case 2 was a 13-year-old boy whose malocclusion was treated by cervical headgear and maxillary bands and had a good result, largely because of the orthodontist's patience and the boy's cooperation. Case 3 was a 14-year-old girl with a severe thumb-sucking habit. The result was good (considering the lack of family cooperation) and the girl was personally pleased. Case 4 was a 13-year-old girl who took pride in her teeth and had a satisfactory result from treatment. Although there are no clear-cut accepted standards for orthodontic treatment of the MR, there are many cases where much can be accomplished by the orthodontist who is willing to experiment. The orthodontic needs of the MR exceed the capabilities of existing services. (14 refs.) - R. Froelich.

1190 Park Avenue
San Jose, California 95100

799 Addelston, Harold Kane. Tell, show, do - how dentist removes fears of unknown. Children Limited, 16(5):5, 1967.

A technique to help children be good dental patients is to tell them what is going to happen, show them, and then do it. With MR children this is usually a longer process, the length of time depending upon the degree of retardation. For those too retarded to understand, a general anesthesia may be necessary. (No refs.) - E. F. MacGregor.

New York University College
of Dentistry
New York, New York

800 Burns, Katherine. The public health nurse in the diagnostic clinic. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for paraprofessional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 93-94.

The team approach for care and services of the MR and his family is a function of the public health nurse in the clinic environment. Referrals to the diagnostic clinic are made by parents, doctors, visiting nurses, and the community. After referrals are screened by the social worker and appropriate dispositions are made for further evaluation, the nurse makes a home visit to gather further objective and subjective information and to discuss problems of parental concern. Evaluations from the involved agencies are obtained and discussed in a case conference with the psychiatrist, and recommendations and follow-up are planned. Suggestions to the family may include, family counseling, enrollment in a day care center, nursery school, special placement in a regular school, or further medical examination. (No refs.) - G. Trakas.

801 Yale, Harriet. The role of the physical therapist in stimulating neuromuscular development and behavioral growth patterns. In: Mansfield Training School, & University of Connecticut. The Activation of Neuromuscular Mechanisms to Facilitate Sequential Development. (Proceedings of the Fifth Conference of the Mansfield-UCONN Seminars on Atypical Development, December 10, 1965), Mansfield Depot, Connecticut, 1967, p. 11-16, Mimeographed.

The activity-program area of the Hospital Improvement Program (HIP) initiated in 1964 at the Mansfield Training School, Mansfield Depot, Connecticut, is aimed at stimulating neuromuscular development and behavioral

growth patterns and is concerned with habilitating profoundly MR and SMR children and adults, some of whom are physically and multiply handicapped. The goals of the activity program for the residents include aiding in self-feeding and toilet training, encouraging physical activity, and developing each patient to his fullest potential. Play observation allows the physical therapist to evaluate the physical abilities and needs of each child. Planned play experiences provide opportunities for physical stimulation, hyperactivity control, and group participation, as well as for love, affection, and attention. Environmental modifications and changes in patient groupings have facilitated patient participation in the activity program, eased patient care, and provided for the shifting of patients from one building to another as they grow in their ability to care for themselves and to enter into activities. Reaction of patients to the stimulation provided by the activity program is reflected in their increased alertness, interest, communication, movement, pride, and responsiveness to the environment. Structured daytime activities for the patients now include school program. (No refs.) - J. K. Wyatt.

802 Klaber, Michael. The psychologist and the day care teacher. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 96-99.

It is important for the psychologist and the teacher to work together when dealing with the MR. Since there is no uniformity in assessing the intelligence, it is suggested that a "developmental forecast" be made for the specific needs of each child rather than giving a prognosis as a result of psychological testing that does not include recommendations for treatment. A psychologist should be consulted by the teacher in the planning and evaluating of the MR's program, including the selection of educational materials. (No refs.) - G. Trakas.

803 Baumstein, David. The social worker. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 91-92.

The functions of the social worker include coordinating and integrating the resources and services of the discipline with those of other agencies. Since the family usually turns to the social worker first, they need the knowledge and cooperation of other agencies so that proper services and referrals can be obtained. (No refs.) - G. Trakas.

804 Costom, Dorothy. Social work and the pre-school mentally retarded. Canada's Mental Health, 15(3/4):25-28, 1967.

A pre-school treatment unit of the Mental Assessment and Guidance Clinic at Montreal Children's Hospital was established in 1964 to accelerate the mental and social development of the TMR child between 3-1/2 and 5-1/2 years of age. Among the many professionals seen by the parents of these children, the social worker maintains continuous contact in areas of adjustment to their child, interpretation of the work of other professionals, and follow-up planning. The social worker helps parents deal with the shock and subsequent depression of retardation diagnosis and their continuing need for interpretation and support. Case material is used to illustrate the social worker's role in the multidiscipline approach. (3 refs.) - J. Snodgrass.

Mental Assessment & Guidance Clinic
Montreal Children's Hospital
Quebec, Canada

805 Phillips, Mary. The social worker's contribution. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 5, p. 38-43.

The role of the social worker in Great Britain is described in relation to the work with educationally subnormal children. In this country there is an acute shortage of social workers, especially those trained in the local authority services. A co-existent problem involves the complexity and multiplicity of departments and services. The influence of lack of communication between various disciplines and departments affects the optimal functions of the social worker.

299-809 O - 68 - 6

Important trends in social work which have influenced the role of the worker are: (1) the increased knowledge of behavior and normal development, (2) the application of casework within the family structures, and (3) emphasis upon community placement. The work with the educationally subnormal population offers excellent opportunities for family casework. Principles of casework with this group involve: reassurance of parent concerning his role, parental responsibility, clarification of the individual's responsibilities, ventilation of feelings, and knowledge of real problems. Group discussions by parents have been helpful. Other supporting agencies such as the Association for the Mentally Handicapped Child should be utilized as valuable sources. (No refs.) - B. Bradley.

806 Dybwad, Gunnar. Le rôle de l'assistant social en matière d'arriération mentale. (The role of social services in mental retardation). Nos Enfants Inadaptes, 24(4):5-8, 1967.

Any program concerned with MR should represent an equilibrium between the rights and interests of the child and those of the parents and society. Classification of the MR involves the problem of rigidity, and the social service worker must realize that when qualitative and quantitative differences exist, classification according to intelligence represents only an approximation. Administrative systems vary, but new programs such as the "village" plan should be considered. These would not be concerned with life placement or continued care unless it were necessary. (No refs.) - C. A. Pepper.

No address

807 Svenson, S. E., & Chassan, J. B. A note on ethics and patient consent in single-case design. Journal of Nervous and Mental Diseases, 145(3):206-207, 1967.

The therapeutic efficacy of an experimental drug can be more specifically assessed in a single case study than in a typical double blind study involving patient groups. In a double-blind single case design the effect of a drug opposed to a placebo can be accurately assessed on an individual patient. This cannot be done in studies involving groups of patients, since the results are a statistical average for the group and the pharmacological effect of a drug on a specific patient separated from its placebo effect cannot be measured. Greater individual patient benefit can be obtained during a single-case study, and explanation of this to the patient will facilitate the obtaining of the patient's consent. (13 refs.) - E. Gaer.

Research Division
Hoffman-LaRoche, Inc.
Nutley, New Jersey 07110

MISCELLANY

808 Petre-Quadens, O., & Jouvet, M. Sleep in the mentally retarded. Journal of the Neurological Sciences, 4(2):354-357, 1967.

A qualitative and quantitative comparison of the various phases of sleep of 45 MR patients and 25 normal Ss was made using nocturnal electroencephalograph (EEG), electrocardiograph (ECG), electromyograph (EMG), respiratory rhythms, and eye movement recordings. The CA of Ss in both groups ranged from 3 months to 62 years, and findings were classified by age groupings as well as by diagnosis. The 10 mongoloids had an increase in the total length of sleep (TDS), normal paradoxical sleep (PS), and a decrease of stages 1, 2, and 3. Patients with MR of unknown cause had decreased PS and TDS with increased proportions of stages 1, 2, and 3. In PKU and cystinuria patients, PS and stages 1, 2, and 3 were lower. TDS decreased with age in both the MR and the normal group. The percentage of PS dropped rapidly in MRs over 15 years old but remained constant in normal Ss up to 62 years old. In the normal patients, the PS percentage remained constant, regardless of TDS, while in the MRs it increased proportionally with the TDS. PS percentages for both groups rose steadily during successive nightly recordings. Data indicated that periods of abolition of muscular tone during sleep are much longer in MR patients, particularly in infants and young children. In normal Ss these periods diminish with age. (1 ref.) - R. Froelich.

Department of Developmental Neurology
Born-Bunge Research Foundation
Berchem-Antwerp, Belgium.

809 Katz-Suchy, E., Jaworska, M., & Majlert, T. Effect of maternal age on the incidence of congenital malformations. Acta Chirurgiae Plasticae, 9(2):104-108, 1967.

Of 29,125 living infants examined, 435 (or 1.5 percent) were affected with congenital malformations, with a higher incidence for mothers aged 15-19 (1.9 percent) and mothers aged 40-44 (2.8 percent) than for mothers aged 24-29 years (1.1 percent). Information was obtained in 4 obstetrical units in Warsaw hospitals between 1959-1964. Infants of mothers aged 15-19 years (Group I) totaled 1,596 with 45 (2.8 percent) neonatal deaths. Infants of mothers aged 40-44 years (Group II) totaled 422, with 16 (3.8 percent) neonatal deaths. Infants of mothers aged 24-29 years (Group III) totaled 10,807 with 258 (2.4 percent) neonatal deaths. The incidence of central nervous system anomalies per 1,000 live births was 6 in Group I, 0 in Group II, and 2 in Group III. Multiple anomalies per 1,000 live births were 3 in Group I, 0 in Group II, and 0.4 in Group III. The incidence of Down's syndrome per 1,000 live births was 0 in Group I, 9 in Group II, and 0.4 in Group III. The risk of malformation was greater for the borderline ages of reproduction ($p < 0.001$). The differences of postnatal mortality between the groups were not significant. When only deaths due to congenital malformations were examined, it was found that such defects were more frequently incompatible with life among offspring of young mothers and were more frequently multiple in nature. (15 refs.) - R. Froelich.

Department of Paediatric Surgery
Research Institute of Mother and Child
Warsaw, Poland

810 Takano, Kiichi, & Nishimura, Hideo. Congenital malformations induced by alloxan diabetes in mice and rats. Anatomical Record, 158(3):303-309, 1967.

Two experiments using diabetic or nondiabetic female rats or mice treated with alloxan showed that congenital malformations occurred in the progeny of the persistently diabetic group when the glucose levels were elevated in the maternal blood and in the embryos during critical periods. In the first study alloxan (200 mg/kg) was injected subcutaneously into ICR mice on day zero of gestation. Gross malformations such as exencephaly, spina bifida, and cleft palate were found in 7.2 percent of the fetuses of persistently diabetic mothers. Intrauterine death occurred in 27.5 percent of the conceptuses of diabetic mothers. No increase in malformations or fetal mortality was found in nondiabetic animals. In the second experiment Wistar rats were treated intraperitoneally by alloxan (160 mg/kg) on the seventh day of gestation. Fetal mortality or malformations increased (50 percent) only in persistently diabetic mothers. These malformations included cataract, hydroephrosis, microphthalmia, exencephaly, and cleft palate. On the eleventh and thirteenth days of gestation, glucose determinations were made on the embryo and amniotic fluid and found to be much higher in the diabetic rats than in the nondiabetic or control rats. It was concluded that alloxan does not have direct action on the embryos but instead causes the malformations by inducing maternal diabetes. (31 refs.) - R. Froelich.

Department of Anatomy
Kyoto University
Kyoto, Japan

811 Neel, James V. Some genetic aspects of therapeutic abortion. Obstetrics and Gynecology, 30(4):493-497, 1967.

A genetic indication for terminating a pregnancy is defined as an appreciable probability that the unborn child will have a major abnormality in which genetic factors are of paramount importance. When a first child has anencephaly, the recurrence risk for a severe central nervous system (CNS) defect is about 4 percent. When 2 children have severe CNS defects, the recurrence risk is 12 percent. If the parents are second cousins and 1 of 2 children develops infantile amaurotic idiocy, the recurrence risk is 25 percent on the basis of simple recessive inheritance. When the first child has congenital abnormality and the second child has a debilitating disease plus an Rh problem, the probability of the parents' having a normal child is 36 percent. A woman with Huntington's chorea has a 50 percent chance of having a child inherit the disease. There is also the problem of the mother's inability to care for the child. Implications of medical advances, contraception, abortion, and new abortion laws are discussed. The Model Penal Code written by the American Law Institute and a statement by Royal Medico-Psychological Association concerning guidelines in this area are

discussed. Since legalized abortion can be interpreted as a form of eugenics, it appears appropriate to proceed at a conservative pace. (11 refs.) - R. Froelich.

Department of Human Genetics
University of Michigan
Medical School
Ann Arbor, Michigan 48103

812 Smithells, R. W. Pediatric aspects of therapeutic abortion. Nursing Mirror, 124(4):77-80, 1967.

Public recognition of a need for legislative revision of Britain's abortion laws is evolving from concern about: (1) the large numbers of illegal abortions carried out in unsuitable circumstances, frequently with undesirable consequences; and (2) the lack of legal sanction for therapeutic abortion by responsible physicians under the safest conditions. The conditions under which therapeutic abortion might be sanctioned include: hereditary disorders, infections, irradiation, drugs, Rhesus incompatibility, and social factors such as rape, incest, and social incompetence. "The responsibility for seeking termination of pregnancies in appropriate circumstances must rest with the parents." Actually it is much better to avoid a high risk pregnancy. (No refs.) - J. Snodgrass.

Alder Hey Children's Hospital
Liverpool, England

813 Nora, James J., Nora, Audrey H., Sommerville, Robert J., Hill, Reba M., & McNamara, Dan G. Maternal exposure to potential teratogens. Journal of the American Medical Association, 202(12):1065-1069, 1967.

A study of 240 pregnant women, 18 of whom subsequently bore children with anomalies, revealed that during pregnancy all had been exposed to potential teratogenic agents (PTA). No statistical difference was found in the number of children with major and minor anomalies born to those exposed in the first trimester (118 mothers) and the number born to those exposed at a later time. Multiple PTA was the general rule. Ss who were exposed in the first trimester and subsequently bore children with major anomalies had a mean PTA exposure of 4.6, compared to a mean of 3.7 for the total group. Due to this multiplicity, it is difficult to define a causal effect for any particular agent. The majority of PTA were prescription drugs. Others included radiation, insecticides, acute illness, smoking, and excessive vitamin intake. Genetic history on 186 patients revealed that 18 percent had relatives with a congential abnormality. Except for a case of congenital heart disease, none of the anomalies were the same as those found in relatives. Inadequate history taking and inability of the patient to recall accurately the time and nature of possible exposure to PTA were sources of bias in the study. Genetic predisposition and an optimum, vulnerable time in fetal development may determine the potential teratogenicity of a particular agent. Since prescription drugs, some of which were unnecessary, constituted the majority of exposures, greater prudence on the physician's part is urged. (14 refs.) - E. Gaer.

6621 Fannin
Houston, Texas 77025

814 Zellweger, Hans, McDonald, John S., & Abbo, Gisela. Is lysergic-acid diethylamide a teratogen? Lancet, 2(7525):1066-1068, 1967.

A unilateral fibular aplastic syndrome was found in a newborn infant whose mother had taken lysergic-acid diethylamide (LSD) during the leg development stage of pregnancy. LSD was taken in unknown dosages on day 25 and 3 times between days 45 and 98. With the exception of vulvitis in week 28 and pyelonephritis in week 36, the pregnancy and delivery were normal. Physical and x-ray examinations of the infant revealed abnormalities on the right side: a short leg, anterior angulation of the tibia, three toes, absence of the fibula, dislocation and limited abduction of the hip, small distal femoral and proximal tibia epiphysis, and 1 tarsal bone with 3 metatarsal phalangeal rays. The left leg was found to be normal, and no other abnormalities were discovered. Peripheral leukocytes showed chromatid breaks in the cells of the father, who had also taken LSD, the mother, and the infant. The time when LSD was taken in the current case is known to be critical for leg development; therefore, it is not unreasonable to suspect a causal relationship. The cytogenetic or teratogenic effects of LSD could be due to alteration of parental chromosomal structure, breakage of embryonic chromosomes, or abortion of the pregnancy. (20 refs.) - E. Gaer.

No address

815 Medovy, Harry. New parameters in neonatal growth - cell number and cell size. Journal of Pediatrics, 71(3):459-461, 1967.

Studies in the rat fetus show that early malnutrition interfered with cell division, and later malnutrition caused a reduction of individual cell size. Hypoxic neonatal mice had smaller organs with a subnormal number of cells. Infants with intrauterine growth retardation have variable subnormalities of individual organs. Cell number is increased in placentas of diabetic mothers and, in addition, cell size is increased in children of these mothers. In children of antenatal growth retardation, liver and spleen were markedly underweight and brain, heart, and lungs were nearly normal. In intrauterine growth retardation from congenital rubella, the brain growth was more affected than other organs with a subnormal number of cells. In newborn infants with erythroblastosis fetalis the thymus, brain, and lymph nodes were decreased in size. If the number of cells in the brain is decreased, MR can be anticipated; however, if the cells are only decreased in size, an increase in growth may catch up to normal size. (17 refs.) - R. Froelich.

No address

816 Ford, H., & Rhines, R. Amino-acid uptake compared in motor neurons, spinal cord grey matter, muscle and liver. Journal of the Neurological Sciences, 4(3):501-510, 1967.

Spinal-cord motor neurons take up labeled amino acids more rapidly than muscle, liver, or total ventral horn grey matter. Radioactive lysine, tyrosine, and glutamine were injected intravenously into male rats (200-250 gm) and their uptake into tissues was measured at various times by scintillation counter. The compound present in the tissue was identified by paper chromatography. Lysine remained unaltered, but metabolites of tyrosine and glutamine were found. The rate of uptake seemed to be determined by type of utilization (protein half-life or transmitter substance) of the cell. Glial cells have little protein synthetic function, thus have slow uptake. The high concentration of glial cells in brain tissue reduces total uptake independent of any blood brain barrier. (17 refs.) - W. A. Hammill.

Downstate Medical Center
State University of New York
Brooklyn, New York

817 Adinolfi, M., & Gardner, B. Studies on the properties of a human fetal serum protein. Developmental Medicine and Child Neurology, 9(5):609-616, 1967.

Investigation of the ontogenesis and characteristics of a fetal serum protein indicated that the protein is an alpha$_1$-globulin that is present in human fetal sera from 8 to 26 weeks of age, in 86 percent of cord sera, and in newborn monkey serum. Rabbit antiserum was produced which did not react to adult sera but did give a line of precipitation in the alpha$_1$-globulin region when tested against fetal serum. The antiserum only reacted to fetal serum when the double diffusion test was used. The electrophoretic mobility ranged from the albumin to beta-globulin at pH 8.6. The globulin was termed the F alpha$_1$-globulin. It was not found in the sera of infants over 2 months of age, in that of adults, or in that of calf, rat, and mouse fetuses. The electrophoretic mobility was similar to the 'X' protein described previously in the literature. Ultracentrifugation separated the globulin into the bulk of the albumin fraction. The globulin was soluble in 2.05 M ammonium sulphate and was not precipitated by dialysis against a 0.02 M phosphate buffer at pH 5.4. The globulin was separated by gel filtration on Sephadex G 200 in the fraction eluted with a 0.10 M phosphate buffer at pH 8.2. The globulin was present in the serum of a newborn Macacus mulatta monkey. (18 refs.) - R. Froelich.

Pediatric Research Unit
Guy's Hospital Medical School
London, S. E. 1., England

818 Schain, Richard J., Carver, Michael J., Copenhaver, John H., & Underdahl, Norman R. Protein metabolism in the developing brain: Influence of birth and gestational age. Science, 156(3777):984-986, 1967.

Previous findings which used the incorporation of isotopically labeled amino acids into protein fractions indicate that brain protein synthesis decreases with age in young animals primarily in the first days of life. Whether this decrease is due to gestational age or to birth itself is unclear. Experiments with newborn pigs suggest that birth factors result in a sharp decrease in amino acid incorporation into brain protein, irrespective of gestational age. Premature decrease in brain protein synthesis during a critical period of growth of the central nervous

system in humans may be responsible for cerebral syndromes appearing later. (10 refs.) - J. Snodgrass.

College of Medicine
University of Nebraska
Omaha, Nebraska 68100

819 Yap, S. L., Watts, D. C., & Spector, R. G. Creatine kinase and brain damage. Lancet, 2(7515):558, 1967. (Letter)

Creatine kinase levels in the jugular venous blood of adult white Wistar rats increased over 5 times following induced anoxic brain injury and up to 10 times after 3 to 24 hours. The enzyme form of creatine kinase occurring in the brain is more labile than the characteristic muscle form. (1 ref.) - J. Snodgrass.

Department of Chemistry
and Pharmacology
Guy's Hospital Medical School
London S. E. 1, England

820 Geber, William F. Congenital malformations induced by mescaline, lysergic acid diethylamide, and bromolysergic acid in the hamster. Science, 158(3798):265-267, 1967.

Malformations of the brain, spinal cord, liver, and other viscera; body edema; and localized hemorrhages were found in fetal hamsters from mothers injected subcutaneously with a single dose of mescaline, lysersic acid diethylamide, or 2-bromo-D-lysergic acid diethylamide on the eighth day of pregnancy. In addition, all three drugs produced an increase in the percentages of small fetuses per litter, of resorptions, and of fetal mortality. (7 refs.) - Author abstract.

821 Beck, F., Lloyd, J. B., & Griffiths, A. Lysosomal enzyme inhibition by trypan blue: A theory of teratogenesis. Science, 157(3793):1180-1182, 1967.

A mechanism of mammalian teratogenesis involving inhibition of embryotrophic nutrition is suggested and exemplified by the action of trypan blue on pregnant rats. There is evidence for the localization of trypan blue in heterolysosomes of the epithelium of the visceral yolk sac, and our experiments indicate that the dye is an inhibitor of a selection of hydrolytic enzymes present in lysosomal fractions from homogenates of rat visceral yolk sac. It seems likely that trypan blue inhibits the intracellular digestion of embryotroph by the visceral yolk-sac epithelium; the conceptus may therefore be deprived of essential nutrients at critical stages of development. (21 refs.) - Author abstract.

Departments of Anatomy and
Biochemistry
University College of South
Wales and Monmouthshire
Cardiff, Wales

822 Silberberg, Donald H., & Schutta, Henry S. The effects of unconjugated bilirubin and related pigments on cultures of rat cerebellum. Journal of Neuropathology and Experimental Neurology, 26(4):572-583, 1967.

Exposure of tissue cultures of newborn rat (12-48 hours old) cerebellum to unconjugated bilirubin and hemin produced changes similar to those seen in the Gunn (glucuronyl transferase deficient) rat. Biliverdin produced no effect. The cultures were exposed to bilirubin (1.0, 5, 7.5, and 15 mg percent), biliverdin (15 mg percent), and hemin (5.0, 7.5, 10, and 15 mg percent) in bovine serum. Tissues were fixed after 2-72 hours of exposure. Light microscopy revealed bilirubin in macrophages, nuclear disorganization, granulation of cytoplasm, and myelin fragmentation. Lower concentrations produced similar but slower changes. Enlargement of the mitochondria suggests interference with enzyme systems. Hemin, an intermediary of hemoglobin catabolism, produces similar effects and may play an important role in bilirubin encephalopathy caused by hemolytic states in the newborn. (27 refs.) - W. A. Hammill.

University of Pennsylvania
School of Medicine
Philadelphia, Pennsylvania

823 Brizzee, K. R. Quantitative histological studies on delayed effects of prenatal X-irradiation in rat cerebral cortex. Journal of Neuropathology and Experimental Neurology, 26(4):584-600, 1967.

Prenatal radiation of rats causes a decrease in brain weight and alterations in the cytoarchitecture. Holtzman albino rats were irradiated with 130 roentgens (R) at

60 R/minute at gestation day 13.5. The brains of a male and female from each of 12 litters were weighed and sectioned for microscopic study. Cell counts of grids from all cytoarchitectural levels of the brains were made, and the relative cell density and relative vascularity were measured. The brain weight to body weight ratio of irradiated brains was reduced by 14 percent. There was irregular clumping of neurons and disorganization of dendrites, as well as poor development of the corpus callosum. Cell densities were slightly decreased but followed the normal bimodal distribution except for greater reduction in layers 4, 5, and 6. Blood vessels greater than 5 micra were normal in size, number, and distribution. Capillaries less than 5 micra were increased in concentration. These data indicate a relative sensitivity of the rat brain to irradiation at 13.5 day gestation. (19 refs.) - W. A. Hammill.

Department of Neurology
University of Utah College of Medicine
Salt Lake City, Utah

825 Eckstein, H. B. New urinary diversion appliance. British Medical Journal, 3(5560):297, 1967. (Letter)

With rapidly increasing numbers of children surviving with meningomyelocele and hydrocephalus, the problem of urinary diversion of incontinent patients becomes more important. The important features of a urinary diversion appliance are: easy application, ease of cleaning, and sterilizability. These concepts have been met by a new device utilizing a 1-way valve to prevent reflux of urine into the diversionary stoma when the patient is lying down. An outlet tap is used which does not come in contact with the urine which is collected in disposable plastic bags. (No refs.) - W. Asher.

Queen Mary's Hospital for Children
Carshalton, Surrey, England

DEVELOPMENT: PHYSICAL, EMOTIONAL, AND SOCIAL

824 Jones, Barbara. Negative effects of vitamin K preparations on glucuronyl transferase activity. Pediatrics, 40(6):993-999, 1967.

Vitamin K analogues did not enhance or decrease hepatic glucuronyl transferase activity in in vitro and in vivo studies in rats. Purified liver microsomes were used in the in vitro studies with ortho-aminophenol (OAP) as the substrate. Vitamin K analogue was injected intraperitoneally in young rats (less than 11 days) which were then sacrificed 4, 24, 48, and 72 hours later. Microsome preparations were compared to littermate controls that received saline injections. No difference between the vitamin K treated rats and the controls' ability to conjugate OAP was detected in either study. OAP is not the normal substrate for glucuronyl transferase, but its conjugation accurately reflects enzyme activity. The hyperbilirubinemia of premature infants given large doses of vitamin K analogues is probably due to hemolysin rather than decreased hepatic conjugation and excretion of bilirubin. (40 refs.) - W. A. Hammill.

West Virginia School of Medicine
Morgantown, West Virginia 26506

826 Fotheringham, John B., & Morrison, Mary. Behaviour problems in children attending schools for the trainable mentally retarded. Mental Retardation (Canadian ARC), 17(2):5-8, 1967.

Little has been written concerning behavior problems in classrooms of TMR children. Internal factors such as organic brain disturbances, chronic ill-health, and communication difficulties tend to be permanent. If a teacher has some knowledge of these factors, the child could be referred for specific treatment. Home influences that contribute to disturbed behavior include: inadequate discipline, parental rejection, instability, marital disharmony, emotional or physical illness of the parent, or parental standards which are contrary to those of the school. Contributory factors within the school are: rejection of the child by the teacher, inadequate discipline, too little or too much activity, and harassment of the child by other pupils. In 1964 a questionnaire dealing with behavior problems was given to all teachers (64) of TMR children in Toronto, Canada. Problems reported were: aggression, overtalkativeness, hyperactivity, temper tantrums, shyness, stubbornness, fears, destructiveness, stealing, and swearing. The survey

found that the majority of teachers handled difficult problems in an adequate manner. (No refs.) - J. Melton.

Mental Retardation Centre
2 Surrey Place
Toronto, Ontario, Canada

827 Spivack, George, & Spotts, Jules. Adolescent symptomatology. American Journal of Mental Deficiency, 72(1):74-95, 1967.

It is possible to construct a practical and useful tool which will give a clear picture of the behavior symptom patterns of adolescents. The 640 Ss (CA, 13-18) were drawn from 5 institutions and included normals, neurotics, personality disorders, brain damaged, retardates, and schizophrenics. Factor analysis of the problem behavior ratings revealed 18 interpretable and homogenous factors and 4 "rational" item clusters. Factor and cluster scores were intercorrelated, and each was correlated with age, sex, IQ, and clinical diagnosis. The factors and clusters included: unethical behavior, defiant-resistive, dominating-sadistic, poor emotional control, schizoid withdrawal, bizarre cognition, bizarre action heterosexual interest, need approval dependency, physical inferiority-timidity, poor coordination, hyperactive-expansive, emotional detachment, anxiety and self-blame, poor self-care and incontinence, untidy-uncleanly, paranoid thinking, and distractibility. Most of the factors are clear in meaning, differentiate between current diagnostic groups, and are internally reliable. Some of the factors, however, need refinement and elaboration. In view of the differences between these factors and those obtained in prior work with latency-age children, a different set of items and a new scale are justified for the atypical adolescent. (14 refs.) - C. M. N. Mehrotra.

314 North Broad Street
Philadelphia, Pennsylvania 19102

828 McKerracher, D. W., & Watson, R. A. Nail-biting in subnormal psychopaths. Journal of Mental Subnormality, 13(1):24-31, 1967.

Of all male admissions to Rampton Hospital over a year's time (N = 87), the 38 percent who were found to bite their nails, when compared with the non-nail biters, exhibited no significant differences of enuresis, neurosis, extroversion, or Lie Scale, but their histories did show an increased incidence of aggressive offences, larceny and arson. The average age of patients was 26.1 years, with a non-significant lower-age average of 25.5 years for nail biters. Sixty-four percent of the nail biters had a severe habitual form of biting. Verbal ability on the Wechsler Adult Intelligence Scale showed no significant difference; it was 73.8 for the nail biters and 75.2 for the non-biters. Scores on the Eysenck Personality Inventory (EPI) revealed no basic personality or symptomatology differences between the 2 groups. Severe and mild nail-biters did not differ on the EPI except for a significant increase in the Lie Scale for the severe nail biters. The nail biters more frequently came to Rampton Hospital directly from other hospitals or prisons rather than from courts of law. EPI scores for the amalgamated sample of nail-biters were in the normal range. The degree of nail-biting appears to be at least as reliable an indicator of behavioral and personality abnormality as the mere presence or absence of nail-biting. (18 refs.) - R. Froelich.

Rampton Hospital
Retford, Nottingham
England

829 Jakab, Irene. Graphic expression of the emotional troubles of retarded children. Confinia Psychiatrica, 10(1):16-27, 1967.

Drawings of 102 emotionally disturbed MRs (Group I) were compared with drawings of 100 MRs (Group II) without signs of disturbance. Group I (mean IQ, 38.2) was composed of 57 schizophrenics (IQ, 40), 23 aggressives (IQ, 38), 17 depressives (IQ, 44), and 5 obsessive compulsives (IQ, 38). The mean IQ of Group II was 38.8. The age range in both groups was 14-17 years. No significant difference existed between the average number of drawings produced by children in the different diagnostic categories. Drawings showed poor organization and lack of the third dimension. Schizophrenics and depressives tended to limit drawings to 1 color. Those with aggressive traits preferred the color orange and avoided drawing human figures. Brown, gray, and purple were preferred by depressives, although black was rarely used. Solitary objects predominated in drawings of depressives and obsessive compulsives. Although no significant differences existed between Groups I and II, graphic traits of psychosis and neurosis seemed to be superimposed over graphic expression of MR. (18 refs.) - R. D. Perkins.

McLean Hospital
Belmont, Massachusetts 02178

830 Robertson, Mary Frances. Shadow image perception. American Journal of Psychotherapy, 20(4):655-663, 1966.

Four withdrawn, disturbed children living in an institution for MR were able to obtain some benefit from shadow therapy. This type of therapy consists of communication by shadows. This is done in a dark, windowless room with a candle placed on a movable stand. The theoretical basis for this kind of approach is the suggestion that darkness is conducive to the disclosure of immediate emotional reactions that may remain unconscious in broad daylight. The children ranged in age from 4 to 10 years. The therapeutic process followed an orderly sequence, first involving ambivalence followed by animation. After this step the child indicated that the animation was part of his fantasy life and separate from reality. A wide variety of reactions occurred to the stimuli of shadow, candle light, and darkness. Stories were used by verbal children, and gestures were used by non-verbal children. Because fantasies could be explored, the children could be more comfortable with their thoughts and expand their self-images. This improved self-concept also arises from the ability to adapt to the problem that shadows present for them. (9 refs.) - R. Froelich.

Division of Child Psychiatry
University of Florida
College of Medicine
Gainesville, Florida 32601

831 Walker, W. Lumsden. Emotional problems of the slow-learning child. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 4, p. 31-37.

The role of emotional problems in program planning for slow-learning children in Great Britain is discussed in terms of their negative effect on learning. Emotional problems of the slow learner create a double handicap. However, emotional problems may exist at all intellectual levels, and it cannot be assumed that dull parents are inadequate parents. The normal stages of development are described with emphasis upon security and affection of the parents. If parents are unable to supply emotional needs, the children may suffer emotional deprivation. Parents who are struggling for survival may be unable to make normal family life possible. The reversal of emotional damage is difficult and may extend over 2 or 3 generations. There may be an excess of emotionally deprived children in families where parents are at the educationally subnormal level. Children in institutions may experience emotional problems due to lack of normal family relationships. Slow children from over-competitive families may also display emotional reactions and lose confidence. Problems of comprehension of the realities of slow-learning children and introduction of over-protection should be considered. The knowledge of emotional needs and problems facing parents of slow-learning children as well as knowledge of their environment may allow more effective counseling. (No refs.) - B. Bradley.

832 Omwake, Eveline. Early childhood development. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 1-7.

Public education has been trailing in doing anything with the development of children under age 6 primarily because of the paucity of materials available for teaching the preschool child. In the past 10 years, research has offered concepts and criteria for early development in the realm of environment, parental roles, mother-child relationships, and developmental issues that hinder learning. Maturation refers to changes that evolve regardless of experiences, while learning refers to a change that takes place as a result of an experience. These concepts infer that there are critical periods in child development, but the degree and rate of growth may vary. The infant initially responds to his environment in a sensori-motor manner and perceives with memory, language, and thought; this results in his ability to conceptualize about himself and his surroundings. The child has various kinds of teachers including time, experience, toys, peers, parents, adults, and of course the professional teacher. The kindergarten teacher aids the child by preparing him for school; she helps the child to organize his experiences and thinking. Teachers of the MR must be familiar with normal child development to understand how far the MR deviates from the sequential growth pattern. (3 refs.) - G. Trakas.

833 Cooper, CeCilia. Crippling and health handicaps. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 55-72.

Individual differences among children with crippling and health handicaps are stressed in the realm of the self-concept, value system, and attitudes. Society's attitudes and those of his own will govern the child's behavior, so it is important to instill positive thinking. How the child conceptualizes and manages his problem is important. Knowledge of the developmental stages of children will aid in determining what treatment to administer. The crippling may be skeletal (osteomyelitis), muscular (muscular dystrophy), and neurological (cerebral palsy). Since mobility is difficult, the school program must allow for bringing the environment closer to the child. Personal hygiene and communication (if only by gesture) should be stressed. Vocational planning should include jobs that the handicapped can perform; field trips may help the individual decide what he can and cannot do. The teacher needs to develop skills of observation and sound planning to check fatigue and rigidity in the classroom procedure. He should be honest in admitting whether or not he has the temperament needed to work with these children. (3 refs.) - G. Trakas.

834 Leonard, Martha F. Helping emotionally and socially maladjusted children. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 73-90.

The maladjusted child is not capable of effective play, learning acceptable social behavior, or sharing experiences. Causes for maladjustment arise from the child, his family, and his environment, but the MR may have further handicaps that hinder his adjustment. Parental attitudes toward rejection or acceptance affect their emotional and social conduct. To evaluate the development of the individual preschool child, the Yale Child Study Center secures a family case history, tests the child, and has a parent conference. Two case studies and subsequent outcomes are given as an example of the services provided by the Center. The educational approach to emotional problems is exercised to teach the child how to live harmoniously in society. Teachers help the MR to understand and cope with his feelings of regret, anger, sadness, and happiness. At the Center, the staff, pediatrician, social worker, nurse, and parent associations work toward helping parents improve their children's skills. After diagnosis, individualized therapy is instituted; some cases are directed into classes for MRs. Early identification is important; if this child has not learned to talk by age 6, he probably never will. Because the work is laborious and discouraging, consultation, guidance and moral support are needed by those working with this child. (9 refs.) - G. Trakas.

835 Wolff, Peter H. The role of biological rhythms in early psychological development. Bulletin of the Menninger Clinic, 31(4):197-218, 1967

The investigation of periodicities in human behavior has usually focused on macro-rhythms with basic frequencies of hours, days, months, or seasons. Rhythmical repetition cycles in the human neonate occur in higher basic frequencies of seconds and fractions of seconds and have a controlling function in early motor activity and relevance in the development of more complex regulators of adaptive behavior. Neonatal crying and nonnutritive sucking are 2 examples of motor activity which appear to be controlled by central rhythms extrinsic to the act itself. Stereotypic mannerisms of older children involve more complex motor coordinations and are more easily influenced by experience, perceptional input, and motivational disposition. The development of such mannerisms was studied in a homogeneous population of institutionalized mongoloid children. It was concluded that regression in neurological function was associated with re-emergence of simple motor rhythms and mannerisms. It was proposed that the apparent suppression of rhythms in behavior is achieved by a phase interaction of 1 or more discrete rhythms and might regulate the serial order of thought patterns and voluntary movements in adults. (33 refs.) - J. Snodgrass.

Harvard Medical School
Boston, Massachusetts

836 Bailit, Howard L., & Whelan, Mary Anne. Some factors related to size and intelligence in an institutionalized mentally retarded population. Journal of Pediatrics, 71(6):897-909, 1967.

Anthropometric measurement of 77 institutionalized MR Ss, aged 6 to 25 years, showed them to be smaller in every measurement than a control population. All MR Ss were without physical, neurological, metabolic, or chromosomal abnormalities and were considered familial-cultural retardates. The control group was drawn from the Philadelphia population and represented a higher socioeconomic class than the MR group. Anthropometric measurements included height, head length, biacromial diameter, bi-iliac diameter, weight, sitting height, bicristal diameter, head breadth, bigonial and bizygomatic measurement, chest breadth, and chest depth. The first 4 measurements had the greatest differences between the 2 groups and were reduced 2 or more standard deviations in 25 to 30 percent of the MR Ss. Other measurements that were made but not found to be significant were birth weight, parental age, and birth order. Birth weight was significantly related to IQ and length of institutional stay. There was a positive correlation between age at admission and IQ. Those heavier at birth were larger, more intelligent, and had significantly larger anthropometric measurements in 6 of 11 parameters. There was no significant relationship found between IQ and size or between length of time spent in the institution and growth or IQ. There was no progression of MR with increasing age. (41 refs.) - R. Froelich.

National Institute of Dental Research
Bethesda, Maryland

837 Pozsonyi, Joseph, & Lobb, Harold. Growth in mentally retarded children. Journal of Pediatrics, 71(6):865-868, 1967.

Investigation of the linear and skeletal development of 958 MR or non-MR children found that 2 groups of MR children with no known organic encephalic disorder were equal in growth to children of normal intelligence - which indicates that MR children are not necessarily physically retarded. Ss were outpatients and ranged in CA from 6 months to 17¼ years. The IQ was measured by a standardized individual test. The height quotient (HQ), skeletal quotient (SQ), and IQ were computed for each S. The Ss were divided into 11 etiological categories: low birthweight (20); mongolism (84); metabolic disorder (18); postnatal cerebral infection (41); unknown structural reaction (117); unknown prenatal influence (186); anoxemic birth injury (74); intoxication (18); unknown functional reaction (157); cultural, familial and emotional MR (84); and normal intelligence (159). Because 9 of the MR groups were younger than the control group, 4 age categories were used to evaluate the results. Correlation between IQ and either HQ or SQ was virtually zero for both the functional and cultural-familial groups. The mean IQ in these 2 groups was 58 and 63 respectively. All groups older than 10 years had about normal skeletal development. Stunting occurred most markedly in mongolism, metabolism disorders, and low birth-weight groups. The inconsistency among coefficients implied that IQ and SQ are only partially under the influence of common factors. (5 refs.) - R. Froelich.

Box 2460 Terminal A
London, Ontario, Canada

838 Tang, Fay C. F., & Chagnon, Maurice. Body build and intelligence in Down's syndrome. American Journal of Mental Deficiency, 72(3):381-383, 1967.

Two extreme groups of Down's syndrome differing in body build (heavier or shorter and fatter and lighter or taller and thinner) were used. Body build was operationally defined as the weight/height ratio. At t ratio of 2.71 ($p < .01$) was obtained when comparing the mean IQs of the two groups. However, the 2 x 2 chi-square solution of the IQ difference of these two groups was 3.279 ($.10 > p > .05$). In extreme groups there is a reliable tendency for heavier Down's patients to have higher IQs. (4 refs.) - (Source: AJMD).

Mental Retardation Centre
2 Surrey Place
Toronto, Ontario, Canada

839 Barrett, Mary L. & Jones, Margaret H. The 'sensory story': A multi-sensory training procedure for toddlers--1. Effect on motor function of hemiplegic hand in cerebral palsied children. Developmental Medicine and Child Neurology, 9(4):448-456, 1967.

Six hemiplegic children (ages 19-60 months) benefited from a multi-sensory training procedure which attempted to incorporate disparate sensory stimuli into an appropriate story. Four were hemiplegic on the right side and 5 had diminished sensitivity to light touch on the affected hand. Improvement was measured by the amount of spontaneous use of the affected hand and by the carry-over into play

activities. The sensory story was designed to present contrasting stimuli that could be used by a toddler. In context of the story, materials were presented to the unaffected hand and then to the affected hand. Efforts were made to allow use of the affected hand, but not to interrupt the thread of the story or the interest of the child. Increases of the growth curve of spontaneous reach and grasp of the involved hand occurred in all children to a significant degree. No improvement occurred for the unaffected hand. Variation in response to the various materials used was great. It appeared that verbal responses and attention span also improved. (14 refs.) - R. Froelich.

The Center for Health Services
University of California
Los Angeles, California 90024

840 Leland, Henry, Nihira, Kazuo, Foster, Ray, & Shellhaas, Max. The demonstration and measurement of adaptive behavior. Project News of the Parsons State Hospital and Training Center, 3(8):1-7, 1967.

Mental retardation is a social, rather than an absolute, concept derived from the critical demands and specific needs of communities. The critical demands in rural, underdeveloped communities differ from those in urban, sophisticated, industrialized communities. In addition, there are age-critical demands for special kinds of coping strategies. Instead of relying on limited measurements represented by the IQ, one should study the manner in which the individual copes with the natural and social demands of his environment. It is necessary, therefore, that the full concept of adaptive behavior be subjected to measurement. "Such a measurement instrument must be based on a clear conceptualization of the critical demands of the environment and the results must be interpreted in the light of the age-critical behaviors required of the individual to survive in a variety of environments." Such a scale must assess the major aspects of independent functioning, the level of motivation, and the social responsibility of the individual. This scale would also be helpful in the bookkeeping aspects of classification and in the development of an appropriate mode of diagnosis to indicate where an individual should be placed for treatment or training. (13 refs.) - C. M. N. Mehrotra.

Parsons State Hospital and
Training Center
Parsons, Kansas 67357

841 Mansfield Training School, & University of Connecticut. The Activation of Neuromuscular Mechanisms to Facilitate Sequential Development. (Proceedings of the Fifth Conference of the Mansfield-UCONN Seminars on Atypical Development, December 10, 1965), Mansfield Depot, Connecticut, 1967, 24 p. Mimeographed.

Programs and techniques based on environmental manipulation of sensory input and external control of muscular activities are being used by physical therapists to generate proprioceptive feedback and to explore possibilities of using indirect modification of nervous tissue to develop increased motor ability in MR and/or physically handicapped children. Human and animal research discoveries support the existence of a relationship between normal environmental stimulation and normal development. The success of proprioceptive neuromuscular facilitation techniques and stimulation methods may permit increases in the adaptive behavior abilities of MRs. These increases may eventually result in the allowance for reversibility in definitions of MR. (8 refs.) - J. K. Wyatt.

CONTENTS: The Role of Neuromuscular Development in Social Behavior; The Meaning of Mental Retardation; The Role of the Physical Therapist in Stimulating Neuromuscular and Behavioral Growth Patterns; The Role of Facilitatory Mechanisms in Movement.

842 Dickerson, Donald J. The role of neuromuscular development in social behavior. In: Mansfield Training School, & University of Connecticut. The Activation of Neuromuscular Mechanisms to Facilitate Sequential Development. (Proceedings of the Fifth Conference of the Mansfield-UCONN Seminars on Atypical Development, December 10, 1965), Mansfield Depot, Connecticut, 1967, p. 1-7. Mimeographed.

Early environmental stimulation appears to provide structural modifications which affect the development of physical and psychological behaviors in humans and animals. The developmental sequencing of human locomotor behavior seems to be related to both exercise and physical maturation. Animal research findings indicate that visual and emotional development are affected by the kinds of environmental stimulation provided. Normal maturation of the visual system of chimpanzees appears to require the experiencing of a normal pattern of light stimulation. Absence or manipulation of normal light stimulation results in abnormal visual behavior and in

structural degeneration of the physiological visual system. Stimulation in infancy seems to be an important component in the development of emotionality in rats. A critical period during which handling-stimulation appears to have a maximum effect has been identified as occurring during the sixth to tenth day of life. Rats experiencing early infancy-stimulation are physiologically different from non-stimulated animals in that they weigh more, open their eyes earlier, exhibit faster myelinization of the brain, and evidence a more rapid maturation of the hypthalamo-hypophysial-adrenal system. (No refs.) - J. K. Wyatt.

University of Connecticut
Storrs, Connecticut 06268

843 Voss, Dorothy. The role of facilitatory mechanisms in movement. In: Mansfield Training School, & University of Connecticut. The Activation of Neuromuscular Mechanisms to Facilitate Sequential Development. (Proceedings of the Fifth Conference of the Mansfield-UCONN Seminars on Atypical Development, December 10, 1965), Mansfield Depot, Connecticut, 1967, p. 17-24, Mimeographed.

The proprioceptive neuromuscular-facilitation method provides an integrated program designed to promote motor development in MR and/or physically handicapped children. It is based on the idea that retardation in motor development may affect other forms of development and may be due to lack of normal amounts of physical stimulation. The program begins at the child's present level of motor ability and uses stimulation techniques based on the principles of normal sequential motor development and learning in order to facilitate the development of increased motor ability. Specific facilitation techniques are selected for each patient in order to increase his variety of motor responses. (8 refs.) - J. K. Wyatt.

Northwestern University
Medical School
Chicago, Illinois 60600

844 Mayer, C. Lamar. Relationships of self-concepts and social variables in retarded children. American Journal of Mental Deficiency, 72(2):267-271, 1967.

The relationships between sociometric status and self-concepts were investigated for 98 junior high school MRs (62 boys; 36 girls; CAs, 12-17; IQs, 50-75). Statistical treatment of self-concept scores was completed by analysis of variance with groupings defined by sociometric and socioeconomic ratings. Ss were placed in either a high, middle, or low group for each of the 2 grouping variables. Measurement instruments included: a modified version of the Syracuse Scale of Social Relations to rate sociometric status; the Index of Status Characteristics to determine socioeconomic status; and the Children's Self-Concept Scale and The Way I Feel About Myself to measure self-concept. Results indicated no relationship between sociometric status and self-concept. There was a trend for the higher socioeconomic children to have higher self-concepts. The self-concept scales showed a correlation of .68. (20 refs.) - B. Bradley.

Department of Special Education
California State College
Los Angeles, California

845 Spradlin, Joseph E., Girardeau, Frederic L., & Corte, Henry. Social and communication behavior of retarded adolescents in a two-person situation. American Journal of Mental Deficiency, 72(3): 473-481, 1967.

Two experiments were conducted with 20 high level and 20 low level retardates (ages 11.5 years to 15.3 years) to evaluate their social and communication behavior in a 2-person situation. In the first experiment, 1 retardate (the operator) could deliver rewards to a second retardate (the receiver) at no cost to himself. Results indicated that operators, as a group, do deliver rewards to the receivers when it does not cost them to do so. In the second study, both the operator and receiver were rewarded if the receiver communicated to the operator which of 4 responses to make and if the operator responded appropriately to the receiver's communication. Pairs including high-level retardate receivers made significantly more correct responses than pairs including low-level retardate receivers. (9 refs.) - (Source: AJMD).

Parsons State Hospital
Parsons, Kansas 67357

846 Chennault, Madelyn. Improving the social acceptance of unpopular educable mentally retarded pupils in special classes. American Journal of Mental Deficiency, 72(3):455-458, 1967.

Subjects for the study were 64 unpopular children in 16 special classes (Negro, IQ 50-79, CA 10-16). In 8 of the classes,

attempts were made to improve the peer acceptance of 2 of the 4 least popular pupils through organized cooperative group activities. Results showed significant improvement in peer acceptance and self-perceived peer acceptance for the experimental Ss. These gains were significantly larger than gains for control Ss "within" the same class. The "inside" control Ss did not differ significantly from "outside" control Ss. (3 refs.) - (Source: AJMD).

Atlanta University
76 Howard Street, N. W.
Altanta, Georgia 30314

847 Van Oudenhoven, N. J. A. De ontwikkeling van debielen en hun sociale gesteldheid. (The development of retardates and their social status). Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg, 3(4):159-171, 1966.

A review of the literature on the development and the resulting social status of EMRs indicates that the only relevant information thus far uncovered consists of vague conclusions about vocational adjustment and leisure activity. Although several hypotheses concerning the growth-process of EMRs have been formulated, they have not been tested. A new research approach is needed starting from the gathering and interpreting of adequate information within a theoretical framework. (64 refs.) - A. Clevenger.

No address

848 Emanuelsson, Ingemar. A twenty-six year follow-up study of mentally retarded children. Slow Learning Child, 14 (1):41-53, 1967.

A 26-year follow-up study of 327 MR children in Sweden was initiated to determine vocational and social adjustment within the community. In 1938, the pupils of all third classes in the schools of Malmo, Sweden, were tested on the Hallgren test; those scoring 1 standard deviation below average were designated as MR. The majority of the 184 males and 143 females were 10 years of age at the time of examination. The sample was divided into 4 social status groups based on parents' vocation and education, family income, family size, and public assistance. Results indicated an over-representation of the lower strata in the MR group; 40 percent were in the lowest group with 5 percent in the highest. Twenty-four percent of the MR group were behind in their school grade, approximately 40 percent had been in a special class of some type, and 94 percent did not progress beyond the 7-year compulsory elementary school. Of the 20 Ss (6 percent) who attempted to continue their studies, only 4 reported taking final examinations in higher school programs. Extensive school information was compiled for most Ss, and public welfare, criminal register, and taxpayer registers were used as additional sources. A detailed questionnaire was also used with approximately 70 percent replying The results indicated that the MR group was over-represented in the criminal register (which records more serious crimes). The over-representation of the lower social classes in the MR group is the probable cause for the higher incidence of criminality in this population. There was an over-representation in the social welfare register only for the grade repeaters from the MR group. About one-third of the MR replying to the questionnaire had joined one or more study circles. It is concluded that in some respects the MR in Sweden have adjustment problems but that effective adjustments are possible and are dependent upon school experiences. (9 refs.) - B. Bradley.

Department of Education and
Psychological Research
Stockholm, Sweden

849 Johnson, Janet M. The use of preferred music to establish cooperative behavior in dyads of retarded children. Project News of the Parsons State Hospital and Training Center, 3(8):7-25, 1967.

Six females and 8 males (CA, 13 to 21 years; mean IQ, 61) were used in a study designed to analyze cooperation and the process through which it is generated. Auditory stimuli (ADS) were used as the reward. While the first phase was designed to determine the most reinforcing ADS for individual Ss, the second phase was planned to train Ss in all nonsocial components of the cooperative response. Results indicated that all Ss produced music on over 75 percent of the opportunities given. In the third phase, a social component was added to the task. On the basis of their matched musical preference, the Ss were divided into 7 dyads. The required task met the stipulations of the operational definition of cooperation. The information needed for completing the response was given to Subject A. Subject A had to communicate the information to Subject B, who was allowed to produce preferred music by acting upon the information. Five of the 7 dyads learned the cooperative response. In treatment condition 2 (control procedure)

no music was presented, regardless of whether or not the Ss acted cooperatively. Treatment condition 3 was identical to the first: music was presented contingent upon cooperative responses. "Comparison of median percentages recorded for each of the 3 conditions demonstrated that the contingent presentation of preferred music had been the variable controlling cooperation." A daily log of social interactions indicated that individual behaviors varied from dyadic behaviors. (28 refs.) - C. M. N. Mehrotra.

Parsons State Hospital and
Training Center
Parsons, Kansas

850 Woody, Robert H., & Herr, Edwin L. Mental retardation and clinical hypnosis. Mental Retardation (AAMD), 5(5):27-28, 1967.

A questionnaire regarding the use of clinical hypnosis with the MR was mailed to each psychologist-member of the American Society of Clinical Hypnosis who held either a Ph.D. or an Ed.D. degree, who resided in the United States, and who was a member of the American Psychological Association. A total of 102 Ss comprised the basic sample, and 84 Ss (82.35 percent) returned usable data. The 84 Ss in the final sample were divided into 3 groups according to the setting in which they were primarily employed. The subgroups were: clinical-private practice, clinical-agency, and academic. The results indicated that the Ss were uncertain about the applicability of hypnosis with the MR and that the majority of the Ss (77.3 percent) had no previous experience with the use of clinical hypnosis with MR clients. (9 refs.) - Author abstract.

LANGUAGE, SPEECH, AND HEARING

851 Weaver, S. Joseph, & Weaver, Ann. Psycholinguistic abilities of culturally deprived Negro children. American Journal of Mental Deficiency, 72(2):190-197, 1967.

Illinois Test of Psycholinguistic Abilities (ITPA) profiles of three groups of culturally deprived Negro children were examined for (a) similarity to profiles from groups of educable and trainable children previously studied, and (b) differences between the experimental and control groups. As predicted, a distinctive profile similar to that found with educables and trainables was found. This profile showed these children to have significantly greater difficulties in the utilization of auditory and vocal channels of communication as compared to their use of visual and motor channels. Also, the experimental groups were significantly higher than the control group in total ITPA language score. Large correlations (total group $r=.83$) were found between language age and mental age but the former were significantly lower than the latter. (21 refs.) - (Source: AJMD).

Box 1990
Brown University
Providence, Rhode Island

852 Cazden, Courtney B. On individual differences in language competence and performance. Journal of Special Education, 1(2):135-150, 1967.

In order to understand individual and group differences in the command of language, it is important to distinguish between language competence and language performance. Competence is the speaker-hearer's knowledge of his language. Performance is the expression of competence in behavior and includes both what one can do and what one habitually does. A current psycholinguistic aim is the development of a "model of performance." Transformational linguists believe that language is acquired in a very short time and needs little environmental exposure. They assert that individual differences exist in performance but not in underlying linguistic knowledge. Developmental differences cannot be viewed as performance only. When graduates, undergraduates, and high school graduates were tested on their ability to form compound nouns, it was found that competence differences existed. In children, it was found that the age at which a common developmental progression was completed varied individually. Although Head Start and similar programs have improved linguistic habits, recent research suggests that educational situations aimed at strengthening those non-linguistic factors which influence performance might increase language ability. (28 refs.) - R. D. Perkins.

Harvard University
Cambridge, Massachusetts

853 Cawley, John F. Communication processes of the mentally retarded. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 19-27.

Schools place emphasis on MA while society is concerned with CA. Therefore, when an 18-year-old who is considered a 12-year-old in school leaves to enter the community, he must make many adjustments. The language development program should consider auditory, visual, and motor "language" as well as verbalization. Drawings and gestures may be used to elicit non-verbal language. To aid the EMR to build broad concepts, a picture may be shown which will permit him to generalize from it to others. The goal is to plan activities which will extract every vestige of the child's intellectual ability. Games are presented that stimulate intellectual thinking and help to eliminate guessing; they take the child's thinking from the concrete to the abstract. The procedure of concept building applies to the teaching of arithmetic as well. Objects may be used to aid in problem solving. (3 refs.) - G. Trakas.

854 Friedlander, George A. Helping children with speech and hearing handicaps. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 28-34.

The teacher can aid children who have speech-hearing problems in learning that language has a symbol system (words) and a signal system (sounds-gestures) for communication. How these are used will depend upon the child's experiences, ability to use abstractions, and past failures. To avoid having intellectually as well as emotionally and perhaps physically deprived children, communication needs to be stressed, especially for retardates. Questions are raised as to how children learn and how they communicate. Intelligible speech cannot be expected when there is little verbal communication or when the case history shows malfunctioning of the tongue, jaw, teeth, and/or soft palate. The teacher may consult with the hearing specialist for suggestions for the classroom treatment of the hard of hearing. Suggestions for building a vocabulary with nouns, verbs, and modifiers as well as articulation exercises are given. (6 refs.) - G. Trakas.

855 Shubert, O. Wendell, Jansen, Barbara C., & Fulton, Robert T. Effects of speech improvement on articulatory skills in institutionalized retardates: II. American Journal of Mental Deficiency, 72(2):212-214, 1967.

A modified replication of a study by Shubert, et al. (1966) on a speech improvement program with 40 institutionalized retardates (CA range, 10-17 years; IQ range, 30-70) was performed. As also found in the original study, significant differences were noted between pre- and post-trials; however, no differences were noted between experimental and control groups. Results indicated that articulatory skills did not improve as a result of treatment. (4 refs.) - (Source: AJMD)

Hamburg State School
and Hospital
Hamburg, Pennsylvania 19526

856 Gordon, Musetta C. & Gordon, Alan M. Comparison of some verbal habits of adults, children, and mentally retarded subjects. American Journal of Mental Deficiency, 71(6):886-889, 1967.

A comparative study of the verbal associations of 48 institutionalized MR adults, 48 intellectually normal children matched for MA, and 16 intellectually normal adults matched for CA indicated closely related hierarchies of response for the 3 groups. Ss were given 1 minute to name all the animals they could think of and then were told to name as many kinds of food as they could in 1 minute. The mean CA of the MRs and of the normal adults was 23.3 and 22.8 years respectively. The mean MA was 9.9 for the MR adults and 9.8 for the normal children. The normal adults averaged more than twice as many responses for each stimulus category as the MRs did. For each group, words in the most frequently given list comprised about the same percentage of total number of responses per group. In the "animals" category it was 71 percent for normal adults, 74 percent for retardates, and 72 percent for normal children. In the "food" category, the percentage was 60 for normal adults, 63

for MR, and 54 for the normal children. Since Ss were drawn from approximately the same midwestern culture, frequency of experience factors in evaluating this evidence must be carefully considered. Associative prepotency may not necessarily generalize from group to group. (6 refs.) - R. Froelich.

Department of Psychology
Woodward State Hospital-School
Woodward, Iowa 50276

857 Fine, Marvin J., Allen, Charles A., & Medvene, Arnold M. Verbal interaction patterns in regular and special classrooms. Paper presented at the 91st meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 13 p. Typed.

Patterns of verbal interaction were investigated in regular and special classes in Topeka, Kansas, Public Schools. Ss attended 4 upper elementary EMR classes, 4 regular classes for children with similar CA's (grades 5-6), and 4 regular classes of similar MA children (grades 2-3). The regular classes were equally divided and designated as middle and lower class according to classroom population and school neighborhood. The Verbal Interaction Category System (VICS) was used to measure classroom interaction. Each of the 12 classes was observed for 3 separate 20-minute periods in both morning and afternoon sessions, and behavior was recorded at 5-second intervals by two examiners. In the final training session, the scoring of the 2 judges was slightly more than 94 percent coincident. Rank order correlations were obtained between interaction profile of the EMR group and that of each other E group. While results indicated a significant and positive correlation between the EMR and each other group, the highest correlations were with the lower class MA and CA matched groups. This suggests that although interaction patterns among classrooms differing in CA, ability, and social class are essentially the same, the interaction patterns in EMR rooms more closely resemble those of lower class groups, regardless of CA. Data indicated that the teacher plays a strong directive role in the predominant classroom activity, regardless of the ability, CA, and social status of the class. Nevertheless, in EMR classrooms, there seems to be relatively less extensive teacher talking and more pupil-initiated, pupil-to-pupil and pupil-to-teacher interactions.

University of Kansas
Lawrence, Kansas

858 Page, Edward K. The relative frequency of occurrence of English consonant sounds in mentally retarded and normal children. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 17 p., Mimeographed.

The frequency of occurrence of English consonant phonemes was recorded in 10-minute conversations with 69 institutionalized MRs (46 males, 23 females, CA 6-10 yrs). Only children using intelligible oral language were selected. After a short rapport period, the examiner asked questions to initiate and sustain speech. The 55,034 consonants derived from phonetic transcription of each tape recorded interview were analyzed for frequency of occurrence and frequency of position (initial, medial, or final). Five sounds (θ, w, h, j, and hw) occurred in the initial position in words over 90 percent of the time, and 1 sound (z) occurred in the final position over 90 percent of the time. Five sounds (n, t, d, r, and s) made up 48 percent of all consonant sounds. The more severely retarded seemed incapable of developing and using all the consonant sounds in their speech. Neither age nor sex appeared to influence frequency of consonant sounds. When results were compared with those of a normal IQ group (Mader) by Z score test, no significant difference was found. (21 refs.) - R. D. Perkins

Plymouth State Home
Plymouth, Michigan 48170

859 Vernon, McCay. Rh factor and deafness: The problem, its psychological, physical, and educational manifestations. Exceptional Children, 34(1):5-12, 1967.

Forty-five children (28 boys, 17 girls) with deafness from erythroblastosis fetalis demonstrated significant deficits in intelligence, educational achievement, emotional adjustment, audiometric responses, and psychodiagnostic evidence of central nervous system dysfunction. The study was done in an attempt to establish the behavorial correlates of neurological damage from erythroblastosis fetalis. Over one-half of the 71 percent with multiple handicaps had cerebral palsy. The mean IQ (94) of the Ss was significantly below the IQ level of the general population ($p = .01$) and also below that of the non-Rh deaf. The decreased IQ was most evident among those children with cerebral palsy. Over one-fourth of the children could not attend or could not maintain minimal standards in a special school for deaf children. Twenty-three percent were

299-809 O - 68 - 7

aphasic and 59 percent had poor written language. Psychodiagnostic tests revealed a high prevalence of central nervous system dysfunction. Although emotional disturbance was found in 12.5 percent of the Ss, this percentage is no greater than that found in other etiological groupings of deaf children. The severe educational deficit shown by these children is indicative of a current lack in educational programs. (23 refs.) - R. Froelich.

Psychosomatic and Psychiatric Institute
Michael Reese Hospital
Chicago, Illinois

860 Vernon, McCay. Characteristics associated with post-rubella deaf children: Psychological, educational, and physical. Volta Review, 69(3):176-185, 1967.

An in situ research study of the post-rubella children (129 cases) in a sample of 1,468 deaf children is reported. Rubella is found to have a prevalence of approximately 9 percent as an etiological factor. Of these 129 children, 43 percent were premature births and 53 percent were multiply handicapped. On measures of educational achievement, the post-rubella deaf were found to do poorly relative to other groups of deaf children, even when IQ level was taken into consideration. Part of this was accounted for by the high prevalence of aphasia (21.9 percent) among these children. Underlying both the aphasia and the other learning disabilities are probably central nervous system lesions. This was reflected in the psychodiagnostic measures administered to the sample. Psychological evaluations, teachers' ratings, and school records all indicate an elevated rate of severe emotional disturbance within the post-rubella group, much of which is probably based on the neurological causes that underlie the learning disabilities. (14 refs.) - (Source: dsh Abstracts)

Michael Reese Hospital
Chicago, Illinois

861 Fulton, Robert T. Standard puretone and Békésy audiometric measures with the mentally retarded. American Journal of Mental Deficiency, 72(1):60-73, 1967.

An analysis of data obtained from the administration of standard puretone and Békésy audiometric procedures to 153 institutionalized MR Ss, representing 4 levels of intelligence (mean IQ for each level - 75.6, 60.0, 44.2, 22.6) revealed that: (1) approximate repeated puretone measures were ±5dB, (2) approximate repeated Békésy measures were ±10 dB, (3) continuous and pulsed stimuli thresholds made during the same session showed fewer differences than test-retest thresholds using similar stimuli obtained at 24-hour intervals, and (5) valid and reliable Békésy findings were not restricted to Ss with higher intellectual skills. Thirty conditions (procedure, continuous/pulsed stimuli, frequency) were presented on a 24-hour repeated measures schedule. Data analysis emphasized relative reliability between repeated measures and the correlational concurrent validity between procedures. The results are considered to provide average norms for the performance of MR Ss under average conditions but suggest wide variability between subjects in adaptation to these audiometric procedures. (10 refs.) - J. K. Wyatt.

Parsons State Hospital and Training Center
Parsons, Kansas 67357

862 Young, Ellery, & Estes, James. An investigation of acoustic impedance measurements in an adult mentally retarded population. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 8 p. mimeographed.

No significant differences were found between the results of "conventional" pure tone audiometric tests and the acoustic impedance measurements of 22 normal hearing MR Ss (CA, 21-40). The hearing thresholds tested were 500, 1,000, and 2,000 Hz. The response to the pure tone audiometric test was a voluntarily raised hand. The response to the impedance measurement test was an involuntary acoustic reflex response. In order for an acoustic reflex response to occur, the middle ear must be free from pathology, the stapedius must be free of any neuro-motor involvement, and an intact reflex arc must be present. The acoustic impedance measurement procedure is a valuable technique with the MR because auditory functioning can be studied regardless of the S's ability to make a voluntary response. Before interpreting the results of acoustic impedance measurements, data from other audiological tests, a case history, and patient observation should be considered. The results of

acoustic impedance tests should be interpreted with caution. (23 refs.) - J. K. Wyatt

Winfield State Hospital
and Training Center
Winfield, Kansas 67156

MENTAL PROCESSES

RESEARCH AND THEORY

Learning and motivation

863 Budoff, Milton. Learning potential among institutionalized young adult retardates. American Journal of Mental Deficiency, 72(3):404-411, 1967.

The Budoff-Friedman study (1964) of learning potential (LP) with institutionalized young adult EMRs was replicated. The Ss whose scores following coaching were markedly higher (gainers) were compared with those whose scores remained unchanged (nongainers). There were no differences between the groups in Stanford-Binet or Wechsler verbal IQs. Gainers' scores on Wechsler performance IQ, Raven's Matrices, and on problem solving and learning tasks were higher. Chronological age, which ranged 17 to 23 years, was uncorrelated with LP status. Gainers tend to have been adjudged neglected or behavior problems; their parents tend to have a higher incidence of convictions for criminal offenses. The implications of these findings are discussed. (19 refs.) - (Source: AJMD).

20 Sacramento Street
Cambridge, Massachusetts 02138

864 Bryant, P. E. Verbalization and immediate memory of complex stimuli in normal and severely subnormal children. British Journal of Social and Clinical Psychology, 6(3):212-219, 1967.

Evaluation of 72 institutionalized SMR children and 72 normal children (equated for MA and CA) for recognition and recall of stimuli varying in color and shape in 3 separate experiments showed that the MR Ss were relatively handicapped in paying attention to more than 1 dimension. Each experiment included 24 MR and 24 normal Ss. Twelve from each group of 24 were made to verbalize about the material. The mean MA and CA levels for the 6 groups varied between 63 and 67 months. The experiments included: (1) recognition of both dimensions (color and shape), (2) recognition of the 2 dimensions separately, and (3) verbal recall of both dimensions. Experiment 1 showed that normals were superior to MRs in recognizing objects characterized by 2 dimensions with or without verbal labeling ($p < 0.05$). Experiment 2 showed that MR Ss responded to verbalization on the objects by improvement of recognition of the second dimension. No such effect was found with the normal Ss. Experiment 3 showed that normals were superior to MRs in recall; MRs who did not verbalize had extremely low scores ($p < 0.001$). The effects of verbalization were very significant. Severely MR Ss would, at times, confuse stimulus aspects of 2 different objects. Those MR Ss who did not verbalize tended to remember 1 dimension in preference to another. It appears that MRs restrict their attention to 1 dimension at a time and that the relevancy of that dimension should be important in learning situations. (9 refs.) - R. Froelich.

Institute of Psychiatry
Maudsley Hospital
London, England

865 Hermelin, Beate. Memory in the severely subnormal. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 8, p. 58-64.

Memory deficits in the severely subnormal in Great Britain are analyzed for their effect upon learning difficulties. Data from retention experiments upon severely subnormal children and normal children indicated that while the rate of initial learning depends on the number of possible alternative responses, rate of forgetting does not. Long-term memory seems to be related to the degree with which the material has initially been learned. After over-learning, memory is better than when material is just learned to criteria. Implications from a second experiment on learning conditions wherein normal and severely subnormal children were matched for mental age indicated that many repetitions and a high stimulus intensity

seem to provide optimal learning conditions for severely subnormal children. Additional data on learning shows that the greater the number of different dimensions which differentiate stimuli from each other, the easier they are to tell apart. In tasks involving recognition or recall, memory processes are related to the amount which has initially been learned rather than the number of trials. An additional retention experiment indicated that the primary difference between normals and subnormals is in their capacity to absorb and register stimuli rather than in the differential rate of forgetting. General conclusions from these experiments indicate: that while initial learning is dependent upon complexity of material to be learned, retention is not; that retention is related to the degree of initial learning not to the number of trials; that initial learning and immediate memory are aided by focusing attention directly upon material; and that slow and frequent presentation should aid the subnormal child in learning. (8 refs.) - B. Bradley.

866 Butterfield, Gail, & Butterfield, Earl C. Acquisition of a learning set is independent of interproblem interval. Journal of Experimental Child Psychology, 5(3):318-323, 1967.

The oddity learning set acquisition of mental retardates was compared under conditions of 1-day, 1-week, and 1-month interproblem intervals. Variations in interproblem interval did not affect the acquisition of the learning set. (8 refs.) - (Source: JECP).

Southbury Training School
Southbury, Connecticut 06488

867 Terdal, Leif G. Stimulus satiation and mental retardation. American Journal of Mental Deficiency, 71(6):881-885, 1967.

Forty MRs attended to stimuli for significantly shorter durations than 60 control Ss matched for MA or CA; this supports the hypothesis that MRs are slow satiators and have more difficulty with background stimuli. MRs included 20 pre-adolescents (mean CA, 11 years 4 months; mean IQ, 44) and 20 adults (mean CA, 20 years 5 months; mean IQ, 57). Control groups included 20 adults (mean CA, 19½ years; mean IQ, 104), 20 children (mean CA, 10 years 8 months) matched for MA with the MR adults, and 20 children (mean CA, 4 years 9 months) matched for MA with the pre-adolescent MRs. Ss were asked to watch a slide screen on which constant or varied designs were shown. The amount of time the S looked away from the screen was recorded. The 2 MR groups and the pre-school control group did not differ significantly. The adult control group had the least non-attending time. The pre-adolescent control group attended significantly more than the pre-adolescent MR group but not more than the adult MRs. It appears that MRs have a low MA-low IQ deficit, which means they have a deficit in comparison with CA control Ss. Their inability to attend may result in repeated failures to learn. (12 refs.) - R. Froelich.

University of Oregon Medical School
3181 S. W. Sam Jackson Park Road
Portland, Oregon 97201

868 Prehm, Herbert J. Studies in paired associates learning: I. An examination of methodology. American Journal of Mental Deficiency, 72(3):492-495, 1967.

The effects of systematic variation in the type of paired-associate list (picture-picture, picture-word, word-word) and the type of response required of S (pronouncing the response as a word as opposed to spelling the response) were investigated using 77 EMR (IQs, 55-84; CAs, 8-14 years) and 78 normal (IQs, 85-145; CAs, 6.5 - 13.2 years) public school Ss. Statistical analysis of the data indicated that (1) performance was significantly impaired by the requirement that the response be spelled; (2) rate of learning of the retarded Ss was significantly inferior to that of normal Ss. (12 refs.) - (Source: AJMD).

University of Oregon
1662 Columbia Street
Eugene, Oregon 97403

869 Hetherington, E. Mavis, & Ross, Leonard E. Discrimination learning by normal and retarded children under delay of reward and interpolated task conditions. Child Development, 38(3):639-647, 1967.

No significant differences of discrimination learning were found between 120 institutionalized moderately MR children and 120 normal children when they were subjected to a delay of reward and interpolated task condition. Children in the control group were matched

for MA on the basis of the Peabody Picture Vocabulary Test. The task consisted of a simultaneous two-choice discrimination problem. The 4 factors involved in the experimental design were population (IQ, normal-retardate), delay (0 vs 12 seconds), stimulus visibility (door open or closed after response) and chip sorting or no chip sorting. The learning problem was presented under immediate and delayed reward conditions with a distracting task either required or not required. Results were measured as the number of mean trials and errors to criterion. A significant disruption of learning occurred when the distracting task was presented during the delay interval. It had been postulated that the more distractable MRs would have more learning difficulties under these conditions, but this was not found. No delay-IQ interaction was found when no distracting task was presented. (5 refs.) - R. Froelich.

Department of Psychology
University of Wisconsin
Madison, Wisconsin 53706

870 Baumeister, Alfred A., Hawkins, William F., & Holland, Jean M. Retroactive inhibition in short-term recall in normals and retardates. American Journal of Mental Deficiency, 72(2):253-256, 1967.

The effects of repetition on recall of sequential material were studied in 24 normal woman (mean CA, 27.7 years) and 24 MR women (mean CA, 27.0 years; mean IQ, 40) as a function of type and amount of retroactive interference. A threshold technique was employed to control for differences in ability to encode. The major findings were as follows: (a) the normals benefited more than the retardates from repetition; (b) type and amount of retroactive interference affected recall in both intelligence groups; and (c) nonspecific practice effects were greater among the normals. The results were interpreted to mean that retardates suffer a memory deficit. It is suggested, however, that such a deficit is not uniquely restricted to short-term retention. (6 refs.) - (Source: AJMD).

University of Alabama
University, Alabama

871 Kern, William H. Negative transfer on sorting tasks, MA, and IQ in normal and retarded children. American Journal of Mental Deficiency, 72(3):416-421, 1967.

Ninety Ss (57 males and 33 females) with an MA range of 5 years 6 months to 8 years 5 months and an IQ range of 51 to 109 were required to perform on a series of sorting tasks to determine the relationships between MA, IQ, and negative transfer. Task 1 involved sorting by shape, Task 2 involved sorting by color, and Task 3 involved sorting by color and shape. Negative transfer was found to be negatively related to MA and to have no significant relationship to IQ. These results do not support the Kounin-Lewin Rigidity Hypothesis which would predict a significant positive relationship between IQ and negative transfer. (8 refs.) - (Source: AJMD).

601 Winterberry Road
Monroeville, Pennsylvania 15146

872 Berkson, Gershon, & *Baumeister, Alfred. Reaction time variability of mental defectives and normals. American Journal of Mental Deficiency, 72(2):262-266, 1967.

In addition to being slower than normal in RT tasks, a mentally deficient group was more variable both between and within Ss. Using a concept of limit of speed and of variability from this limit, a criterion was suggested for estimating whether individuals are working close to their limit of speed. Many deficient Ss apparently do not. (6 refs.) - (Source: AJMD).

*University of Alabama
University, Alabama

873 Lingren, Ronald H. Anxiety, praise, and reproof: Their effects upon learning and recall of MR boys. American Journal of Mental Deficiency, 72(3):468-472, 1967.

The effects of anxiety, praise, and reproof upon the learning and recall of a complex paired-associates task were evaluated in 60

noninstitutionalized EMR males (CA, 11-14, IQ, 60-80). Either praise or reproof of performance was given the high and low-level anxiety groups. According to drive theory, "low anxious" EMR boys would perform at a higher level than "high anxious" Ss on the task. Results did not support the drive theory hypothesis. Reproof was superior to praise in facilitating performance, irrespective of anxiety level. Two possible explanations are given. Both praise and reproof groups manifested significant reminiscence effects. (17 refs.) - (Source: AJMD, edited).

University of Wisconsin-
Milwaukee
3203 N. Downer Avenue
Milwaukee, Wisconsin 53201

874 Goulet, L. R., & Barclay, A. Guessing behavior of normal and retarded children under two random reinforcement conditions. Child Development, 38(2):545-552, 1967.

Retardates' patterns of response preferences are more stereotyped than those of normal children. The Ss were 60 normal and 60 retarded children (CA, 9 to 15 yrs; MA, 6 to 8 yrs; IQ, 50-70). For the normal sample, Ss were first and second-grade children representing an adequate cross-section from the normal range of mental ability. Trial and error behavior was compared for these 2 groups of children in an unsolvable multiple-choice task. The Ss were reinforced randomly on 10 percent or 25 percent schedules. Patterns of responding were more redundant (as measured by consistency of responding) under the 25 percent schedule, confirming that "reinforcement can strengthen certain response patterns even though such reinforcement yields no concrete or utility oriented information." Reinforcement conditions affected normal and retardate in the same manner, suggesting that its effect is somewhat independent of higher intellective processes. Index of Behavioral Stereotypy (IBS) was used as a measure of redundant responding because it provided an estimate of the degree to which the children's response patterns deviated from patterns expected by chance. Analysis of variance revealed that the effect attributable to order of approximation was highly significant. Also, the sample X order of approximation interaction was statistically significant, which is accounted for primarily by the greater stereotypy of retardates, as compared to normals, at the sequences of 3 responses. When IBS was plotted as a function of the order of approximation for all sequences of 1 response, 2 responses, and 3 responses, it was seen that behavioral stereotypy increases as a function of the response sequence known. Knowledge of immediately preceding responses increases the predictability and orderliness of later responses. (8 refs.) - C. M. N. Mehrotra.

Department of Psychology
West Virginia University
Morgantown, West Virginia 26506

875 Baumeister, Alfred A., & Berry, Franklin M. Distribution of practice and specificity of learning in normals and retardates. American Journal of Mental Deficiency, 72(2):227-231, 1967.

Forty normals (mean CA, 20 years) and 60 retardates (mean CA, 23 years; mean IQ, 60) were compared on 2 perceptual-motor searching tasks that differed with respect to the amount of specific learning possible. Distribution of practice was varied by the use of intertrial intervals of either 10 or 60 seconds. The retardates were found to perform as well as normals under the longer intertrial interval. Massed practice differentially impaired the performance of the low IQ Ss. The nature of the task was irrelevant to the interaction involving intelligence and distribution of practice. (15 refs.) - (Source: AJMD).

University of Alabama
University, Alabama

876 Kahn, Harris, & Burdett, Arthur D. Interaction of practice and rewards on motor performance of adolescent mental retardates. American Journal of Mental Deficiency, 72(3):422-427, 1967.

Poor performance by MRs on motor skills tests has been interpreted as evidence of general organismic deficit. Combinations of practice and reward schedules for 3 different motor skills tasks were given to the study group of 21 girls and 15 boys (mean CA, 14.7 years, mean Wechsler IQ, 62.9). The Ss improved significantly over 20 trials in each of the tasks. The findings suggest that retardates present poor initial performance in such tasks because of slowness in adapting to novel demands, and that through opportunity for learning they are capable of relatively rapid and great degrees of improvement. (12 refs.) - (Source: AJMD).

University of Connecticut
Storrs, Connecticut 06268

877 Blount, William R. Naive male retardates and U. S. moneys: An exploratory study. American Journal of Mental Deficiency, 72(3):487-491, 1967.

Twenty naive male retardates (no training in making change) viewed all possible pairs of various amounts of money and were instructed to (1) indicate their preference and (2) indicate which was the greater amount. Pair comparisons analysis of the data confirmed the expectation that MA 3 Ss chose on the basis of the size or quantity of the coins, while the MA 5 Ss were not influenced by these dimensions to so great an extent. It also was noted that Ss had difficulty arranging the amounts of three pennies, one nickel and one dime in their proper value order and that larger denominations were similarly difficult for these Ss. The present results were compared with data from normal Ss. (9 refs.) - (Source: AJMD).

George Peabody College
Nashville, Tennessee 37203

878 Hom, George L. Effects of amount of reinforcement on the concurrent performance of retardates. Psychological Reports, 20(3, I):887-892, 1967.

The effect of amount of reinforcement on the performance of 20 mildly and moderately mentally retarded children during acquisition and extinction was studied. A significant relationship was obtained between the amount of reinforcement and performance during both acquisition and extinction. The concurrent performance procedure was a sensitive measure of the effects of amount of reinforcement in maintaining Ss' performance. Thus, a change in the amount of reinforcement will exercise a differential effect on overall response rate when an alternative incompatible response is available. (13 refs.) - (Source: PR).

University of Oregon
Portland, Oregon

879 Siegel, Paul S., Williams, Joann, & Forman, George E. Instrumental behavior in the retardate in relation to qualitative variation in the incentive. American Journal of Mental Deficiency, 72(3): 450-454, 1967.

Forty-eight residents (CA, 15-27 years; IQ, 35-39) of an institution for the MR were rewarded for dropping marbles through a tube with either a small lock washer (of low preference value) or a penny (highly valued) for each 10 responses. One group (N=12), was switched after 10 minutes from low to high reward; another (N=12), from high to low. The former exhibited an immediate rate increase; the latter, little change. When reinforcement was discontinued during a third phase, both groups yielded evidence of extinction. Control groups continuing throughout on either low or high reward showed steady improvement. (8 refs.) - (Source: AJMD).

University of Alabama
University, Alabama 35486

880 Haywood, H. Carl, & Weaver, S. Joseph. Differential effects of motivational orientations and incentive conditions on motor performance in institutionalized retardates. American Journal of Mental Deficiency, 72(3):459-467, 1967.

Forty relatively extrinsically-motivated (EM) institutionalized MRs and 40 relatively intrinsically-motivated (IM) similar Ss performed a hole-punching task over 4 60-second trials under 1 of 4 incentive conditions: 10¢ reward, 1¢ reward, promise of another task (task incentive), or no reward (control). IM Ss punched more holes under the task incentive than under money incentives, while EM Ss punched more holes under the money incentive conditions. The results support the application of motivation-hygiene concepts to the behavior of MR persons and suggest that studies of interactions between personality-motivational variables and performance variables will yield useful data, both practically and theoretically. (18 refs.) - (Source: AJMD).

Department of Psychology
George Peabody College
Nashville, Tennessee 37203

881 Gardner, William I., & Brandl, Charlene. Reinforcement conditions and incidental learning in mentally retarded adolescents. American Journal of Mental Deficiency, 72(2):215-219, 1967.

Mildly retarded adolescents, after performing on a serial learning task, were tested for recognition of incidental cues present during learning. The non-incentive group (NI) received only instruction; the social reinforcement group was provided with verbal statements of praise during learning trials, and the tangible incentive group (TI) was offered a prize for satisfactory performance. Providing supportive comments resulted in better

intentional learning and more efficient incidental learning than obtained under the conditions of tangible reward or of instruction-only. Group NI did not differ from Group TI. These results were compared with those obtained in studies using normal children and adults. (16 refs.) - (Source: AJMD)

University of Wisconsin
1815 University Avenue
Madison, Wisconsin 53706

882 Sackett, Gene P. Reward frequency and choice behavior in naive and sophisticated monkeys and mentally retarded children. Journal of Comparative and Physiological Psychology, 64(1):151-153, 1967.

Rhesus monkeys and mentally retarded children who were experienced (test sophisticated) or not experienced (test naive) in discrimination learning were given 3 daily tests in a Wisconsin General Test Apparatus. On 14 of the day's 20 single-object training trials, a more-often-rewarded object (MO) appeared, and on 6, a different, less-often-rewarded object (LO). Training was followed by 2 free-choice test trials with MO and LO objects both present. Food reward was given for displacing any object on training and test trials. Naive monkeys and children did not choose the MO object on free trials, but sophisticated Ss did. Naive Ss behaved like rats under similar conditions. Sophisticated Ss did not show "stimulus satiation" often obtained with rats. (7 refs.) - (Source: JCPP).

Primate Laboratory
University of Wisconsin
Madison, Wisconsin

883 Wunderlich, Ray C. Learning disorders. Journal of the American Physical Therapy Association, 47(8):700-708, 1967.

Learning disorders are discussed from several positions, along with observations that the deleterious effects of brain injury are most often secondary and multiple handicaps can additively produce a learning disorder. This indicates the frequent complexity of learning problems. Learning is an active process that can be inhibited if the individual is biologically incomplete or environmentally deprived or stressed. For proper learning both sensory and motor differentiation must be normal. Motor differentiation begins with gross motor control progressing to fine motor movement. Conditions leading to or associated with learning disorders include retardation, cerebral palsy, epilepsy, aphasia, infantile autism, deafness, blindness, emotional disturbance, deviant training, and unrewarding environment. The term MR is a descriptive term, and it is important that remedial deficiencies be ruled out before that diagnosis is made. The preventable forms of MR are very important to detect. Most children learn by alternating phases of struggle and repose. Developmental fixation can develop from acquired disease, genetic influences, insufficient environmental opportunity, or emotional problems. Development of laterality should have been established by 6 years of age. (10 refs.) - R. Froelich.

Suncoast Medical Clinic
St. Petersburg, Florida 33701

884 Scott, D. F., Moffett, A., Mathews, A., & Ettlinger, G. The effect of epileptic discharges on learning and memory in patients. Epilepsia, 8(3):188-194, 1967.

Performance on a series of non-verbal learning and memory tasks in the visual, auditory, and tactual modalities did not differ between 24 epileptic patients and 16 normal controls matched for IQ or between epileptic patients of high or low seizure frequency. All Ss were right-handed males. The mean age for the epileptic Ss was 34.4 years and for the normal Ss, 28.7 years. Sixteen of the Ss had temporal lobe foci, 2 had frontal lobe foci, and 6 had centrencephalic epilepsy. They were divided into 3 groups according to frequency of seizures. Each S was given the Raven's Progressive Matrices before the test. The test used in the study consisted of a series of easy sentence discriminations in the visual and tactual modalities and a series of recognition tests in the visual and auditory modalities. The procedure was divided into 4 stages consisting of visual and tactual discrimination (stage 1), visual and auditory discrimination (stage 2), a neuropsychiatric assessment (stage 3), and memory of the sensory discrimination tasks in stage 1 (stage 4). In stages 1 and 4 no significant differences were found between the groups on any 1 variable. In stage 2 the only significant result was more errors in the low active group of epileptics than in the high active or control groups which was opposite to the expected result. No correlations for duration of illness or age of onset were found. The defect in this study could be an insensitive method of measurement. (8 refs.) - R. Froelich.

The London Hospital
Whitechapel,
London, E.1, England

885 Stimulant drugs and learning disorders in children. Journal of the American Medical Association, 202(3):227, 1967. (Editorial)

The mechanisms responsible for the often-dramatic learning enhancement of disturbed children treated with amphetamine are not well understood. Although experimental studies are few, one recent report suggests that improvements are based on assertiveness and energy of response - energy for control in the hyperkinetic child or for increased vigor in the overinhibited child. (2 refs.) - J. Snodgrass.

886 Williams, Paul. Comment on "Sensory deprivation and aberrant behavior among idiots" by Cleland and Clark. American Journal of Mental Deficiency, 71(6):1026-27, 1967. (Letter)

The previously published article presented no evidence that SMRs are inherently reliant on kinesthetic stimulation. Experience suggests that the deprivation is external in that institutionalized Ss lack stimulation by human contact and by a variety of play materials. (2 refs.) - J. Snodgrass.

Subnormality Research
Wessex Regional Hospital Board
Winchester, England

Nature of intelligence

887 Spitz, Herman H. Information transmission in an absolute judgment task with feedback, using normal and retarded subjects. Journal of Comparative and Physiological Psychology, 64(1):85-92, 1967.

Retardates and equal-MA and equal-CA normals were required to judge scale position of a pointer on a standard horizontal line with feedback from a hidden scale after each judgment. On a 15-point scale, channel capacities of the 3 groups were 2.86, 3.13, and 3.43 bits, respectively, indicating that optimum scale size would be 7, 9, and 11, respectively; additional testing confirmed these projections. Only equal-CA Ss developed a conceptualized middle anchor when none was provided. Retardates consistently had difficulty judging from the right end anchor, although the right intermediate area was troublesome for all groups. A real center anchor was differentially utilized by the retarded and equal-MA groups. (10 refs.) - (Source: JCPP).

Johnstone Training and
Research Center
Bordentown, New Jersey

888 Reiss, Philip. Implications of Piaget's developmental psychology for mental retardation. American Journal of Mental Deficiency, 72(3):361-369, 1967.

Piaget postulates that intelligence, an interaction between organism and environment, develops through an invariant sequence of stages. Schemas, the basic structural unit of intelligence, impel behavior and account for learning. Sources of individual differences implicit in Piaget writings and theory are variations in: (1) the number, kind, and sequence of stages; (2) the status of earlier modes of thinking; (3) the stability of the stages; (4) the rate of development, and (5) the limiting factor (perhaps biological) which sets boundaries on development. When these are related to problems of intelligence testing, it appears pointless, at the present, to develop a test in the Piagetian framework which will measure these factors, for such a test will yield little data that is not already available by other models. A Piagetian interpretation of MR focuses attention on current level of function and developmental rate. Research indicates that retardates pass through the hypothesized sequence of stages, although seldom attaining the level of concrete operations. However, there is little evidence to indicate that special methods of instruction will accelerate the development of intellectual functions. The manner of organizing the curriculum to parallel the pattern of intellectual development needs to be studied further. (30 refs.) - (Source: AJMD, edited).

Ferkauf Graduate School
Yeshiva University
New York, New York 10003

889 Osborne, R. T., & Tillman, M. H. Normal and retardate WISC performance: An analysis of the stimulus trace theory. American Journal of Mental Deficiency, 72(2): 257-261, 1967.

To examine the stimulus trace dimensionality in the performance of retarded Ss on the WISC, factor analysis was applied to 2 27 by 27

intercorrelation matrices obtained on 264 retarded (mean CA, 10.6 yrs; mean IQ, 61) and 152 normal (mean CA, 6.8 yrs, mean IQ, 110) children. Varimax analysis yielded 9 factors for normal and 7 for retardates. There were 6 common factors, Verbal, Numerical, Perceptual Organization, Picture Arrangement, Picture Completion, and Similarities, which accounted for 78 percent of the common variance for normals and 88 percent for retardates. According to trace theory prediction, a factor was obtained which distinguished the performance of normals and retardates. Interpretation of this factor, Factor D, centered on attentiveness. (12 refs.) - (Source: AMD).

University of Georgia
Athens, Georgia 30601

890 Milgram, Norman A., & Furth, Hans G. Factors affecting conceptual control in normal and retarded children. Child Development, 38(2):531-543, 1967.

Age level (CA for normal and MA for retardates) is the most important single factor in enhancing conceptual control. The Ss were 180 normal children who were evenly divided into 2 age groups with a mean CA of 6.3 and 9.4 years respectively and 112 retarded Ss with MA of either 6 or 9 years. The concept to be attained was part-whole - the notion that "A is part of B." The Ss were presented 23 sets of 5 pictures. In each set 2 drawings depicted a part-whole relation, and the remaining 3 provided misleading conceptual and perceptual associations. In the control condition (C) sets 1-10 were a corrected series in which feedback was provided to the Ss and sets 11-20 were an uncorrected series. The explanation condition (E) differed from C only in the fact that much more elaborate instructions were provided during the practice trials. The verbalization condition (V) differed from C only in instructions to Ss to "think aloud" and explain their choices to each set. In Sentence Frame (SF) condition, Ss were asked to name the objects and say "(name) is part of (name)." Analysis of variance revealed that the major effect of age level is highly significant. The condition effect was significant for normal children but not for retardates. Subsequent "t" tests showed that: (a) the SF condition was superior to C, (b) the E condition was somewhat less effective, and (c) the V condition was not significantly different from C and was inferior to the SF condition. "Corrective feedback was minimally important in maintaining conceptual control, and its effect was confined largely to 9-year-old children. In general, the MA 6 retardates did not differ significantly from the younger normals on the concept task, but retardates at MA 9 were found to be deficient to a degree beyond that predicted by their MA level." (11 refs.) - C. M. N. Mehrotra

Child Center, Catholic
University of America
Washington, D. C. 20017

891 Birch, Herbert, & Bortner, Morton. Stimulus competition and concept utilization in brain damaged children. Developmental Medicine and Child Neurology, 9(4): 402-410, 1967.

The hypothesis that defective conceptual functioning in brain damaged children is due to the domination of behavior by immediately present stimulus properties and not by the child's failure to possess concepts of a higher order was tested. Object matching behavior in 104 cerebral palsied (aged 5-21 years) and of 188 normal children (aged 3-10 years) was studied under two conditions. In the first condition the key object could be matched on the basis of stimulus similarity, common function, or common class membership. In the second condition the competitive presence of stimulus similarities was markedly reduced. Cerebral palsied children who could not express concepts of function and class membership under conditions of stimulus competition did so when such competition was systematically eliminated. The findings were discussed in the context of Pavlov's conception of first and second signalling systems. (20 refs.) - Author summary.

Department of Pediatrics
Albert Einstein College
of Medicine
New York, New York 10461

Perception

892 Hollis, John H. Development of perceptual motor skills in a profoundly retarded child: Part II, Consequence change and transfer. American Journal of Mental Deficiency, 71(6):953-963, 1967.

Part I of this paper (Hollis, 1967) showed the development of simple perceptual motor skills in a profoundly retarded child. Part II, Experiment 1, shows the effects of contingency and consequence change on Bent-Wire

performance. When S was shifted from continuous reinforcement (crf) to fixed ratio 40, her performance differed little from the crf baseline. However, when S was satiated and there was no consequence to correct problem solution, her performance dropped to near zero. Experiment 2 was concerned with transfer of training. The results showed for Bent-Wire problems near zero transfer from the right hand to the left hand. The skill developed with the left hand on Patterned-String problems transferred better than 90 percent to the right hand. (16 refs.) - (Source: AJMD).

Parsons State Hospital
and Training Center
Parsons, Kansas

893 Hollis, John H. Development of perceptual motor skills in a profoundly retarded child: Part I, Prosthesis. American Journal of Mental Deficiency, 71(6): 941-952, 1967.

This paper (Part 1, Prosthesis) presents 2 prosthetic strategies employed for prosthetizing and rehabilitating behavior handicaps: (1) prothesis of the deficient operant reflex; and (2) construction and use of prosthetic devices. In Experiment 1, application of prosthetic techniques resulted in the elimination of stimulus, contingency, and consequence deficiencies in the operant reflex. Experiment 2 was successful in developing a high level of proficiency on Bent-Wire problems with the right hand. Experiments 3 and 4 were successful in developing a high level of proficiency on Patterned-String problems with the left hand. Part II of this paper presents data on consequence changes and bilateral transfer of training. (9 refs.) - (Source: AJMD).

Parsons State Hospital
and Training Center
Parsons, Kansas

894 Terdal, Leif G. Complexity and position of stimuli as determinants of looking behavior in retardates and normals. American Journal of Mental Deficiency, 72(3): 384-387, 1967.

Durations of attending to simple and complex designs projected alternately on the left and right of the S were studied. The Ss consisted of 2 MR groups (young adults, IQ mean, 57; preadolescents, IQ mean, 44) and 3 normal groups (young adults, preadolescents, and pre-schoolers). The results showed that, compared with normals, retarded Ss showed marked position (spatial) preferences. Both retarded and control Ss showed preferences for viewing complex as opposed to simple checkerboard designs. The results suggest that persistent responses to stimuli not followed by extrinsic reinforcement may contribute to high rates of competing responses in learning situations. (4 refs.) - (Source: AJMD, edited).

3181 S. W. Sam Jackson
Park Road
Portland, Oregon 97201

895 O'Connor, N., & Hermelin, B. Auditory and visual memory in autistic and normal children. Journal of Mental Deficiency Research, 11(2):126-131, 1967.

Measurement of auditory and visual memory in 24 normal children and 12 psychotic children matched for MA showed that deficiencies of meaning appreciation and tendencies to echolalia were more marked in the autistic children when verbal, rather than visual, material was used. The normal children were between 3½ and 5 years old. The 12 psychotic children, diagnosed autistic by psychiatrists, ranged in age from 7 years 4 months to 15 years 8 months. The normals (ages 3 years 6 months to 5 years) were divided on the basis of age into 2 equal groups. All 3 groups were matched for MA by the Peabody Picture Vocabulary Test. After being shown an arrangement of words or pictures in either meaningful or random sequence, the Ss were asked to reconstruct the order. Although an effect of position or recency on recall was evident in all groups, it was more marked in psychotic children. Meaning was less appreciated by psychotics. The difference between the 2 normal groups and the psychotic group for auditory position effect was significant ($p = .02$ and $.002$). As previously reported, this significant finding indicates that, in contrast to its effect on normals, verbal meaning is relatively ineffective in improving the scores of psychotic children. (8 refs.) - R. Froelich.

The Maudsley Hospital
Denmark Hill, S. E. 5
England

896 Conners, C. Keith, & Barta, Frank, Jr. Transfer of information from touch to vision in brain-injured and emotionally disturbed children. Journal of Nervous and Mental Disease, 145(2):138-141, 1967.

Nineteen brain-injured children with normal intelligence were found to have significantly poorer ability to transmit information from touch to vision than 19 matched children with severe emotional disturbances. The brain-injured group was heterogeneous as to etiology of organicity and consisted of 17 males and 2 females (CA, 5 to 15 yrs). The control group were institutionalized and also consisted of 17 males and 2 females (CA, 7 to 15 yrs). IQs for the 2 groups were similar. The test consisted of touching a form which was out of sight and matching it with 1 of 27 visible forms varying in 3 dimensions: shape, size, and angle of orientation. There was no significant interaction between diagnosis and dimensions. In responding to all 27 forms, the brain-injured children were significantly slower than the controls. Therefore, the possibility that the differences between the groups were due to impulsivity was ruled out. The deficit among the brain-injured group appeared to be a general one that was related to a slow rate of information transmission. The brain-injured group actually explored the figures more than the controls. More knowledge about the type of injury and the most affected sensory system would be helpful in a study of this nature. (6 refs.) - R. Froelich.

Department of Psychiatry
Massachusetts General Hospital
Boston, Massachusetts 02114

897 Lu, Elsie Go. Early conditioning of perceptual preference. Child Development, 38(2):415-424, 1967.

"The stimulus preference of infants, as well as retardates with infant mentality, can be influenced by conditioning." Ten institutionalized retardates (mean CA, 51 mo; mean MA, 10 mo) and 10 normal infants (mean CA, 5 mo; mean MA, 7 mo) were randomly divided into experimental and control groups of 5 Ss each. All Ss were presented with the following stimuli in all possible pairs: schematic face, circle, newsprint, white, yellow, and red. The attention paid by the S to the 4 exposures of each stimulus was measured. In the conditioning phase, a red light provided the conditioning stimulus, while food was the primary reinforcer. Several post-tests were then given to all Ss. For a preference test, the pretest procedure was repeated. For generalization to a discrimination task, the following stimuli were presented: black and red stripes, bull's eyes, checkerboards, faces, scrambled faces, circles, and solid stimuli. Onset of a red light was used as reinforcement because it was assumed to have acquired a secondary reinforcement value. Fixation time on red stimuli, as compared to that on black, was used as an indication of learning. The data on stimulus preference was subjected to analysis of variance. Conditioning significantly changed the order of preference from pretest to post test for the experimental Ss. A significant change was observed in the order of the fixation times from pretest to post test for the experimental group, but not for the control group. For the experimental Ss, significantly increased fixation time was noticed for the red stimulus with a shift in rank from fourth in the pretest to second in the post test. Retardates indicated a preference for a particular stimulus by a longer fixation time. Preference is a function of age, complexity of pattern, and social cues. (11 refs.) - C. M. N. Mehrotra.

Pacific State Hospital
Box 100
Pomona, California 91766

PSYCHODIAGNOSTICS

898 Anderson, Harry E., Kern, Frank E., & Cook, Charlotte. Correlational and normative data for the Progressive Matrices with retarded populations. Journal of Psychology, 67(2):221-225, 1967.

Correlational and normative information obtained from testing male and female, white and Negro, vocational rehabilitation students at the Georgia Rehabilitation Center (GRC) yielded substantial correlations between the sets of the Coloured Progressive Matrices (CPM) (correlation range .495-.619), between the Verbal (V) and Performance (P) subtests of the Wechsler Adult Intelligence Scale (WAIS) (.622), and between the Word Recognition (WR) and Arithmetic (Arith) achievement variables of the Wide Range Achievement Test (WRAT) (.493), as well as low to moderate correlations among grade level, intelligence, and achievement variables. The CPM, WAIS, and WRAT were administered to

107 students during their first week at GRC. CPM scores of the Ss plus those of 44 additional students were used for normative purposes. Age range for the group was 16-62 years (mean 26.9 years), mean WAIS score was 86, and average grade level attained was 9.3. WRAT scores indicated that the average operational achievement level for the group ranged from grade 4 in arithmetic to grade 6 in word recognition. Although CPM-WAIS correlations were higher with WAIS-P (.519) than with WAIS-V (.470), both were low enough to support the use of both these tests in evaluating this type of population. The range-of-variance overlap in CPM and WAIS scores extended from .11 to .25. Evaluation of CPM scores revealed that Set B was the most difficult and that total score distribution was the best measure for assessing individual differences. (4 refs.)- J. K. Wyatt.

Research and Development Center
in Educational Stimulation
The University of Georgia
Athens, Georgia 30601

899 Wells, Donald G., &*Pedrini, Duilio T. Relationships between the S-B L-M, G-H, and PPVT with institutionalized retardates. American Journal of Mental Deficiency, 72(3):412-415, 1967.

This study used 277 institutionalized retardates with IQs from 24 to 69 and ages from 8 to 22 years. Analysis of variance showed the sex and test main-effects and the age x test and sex x test interactions to be significant. In a subsample matched on the Stanford-Binet (S-B) IQ, the IQ means of the females were lower than those of males on the Peabody Picture Vocabulary Test (PPVT) and the Goodenough-Harris (G-H). All PPVT and G-H IQ means were higher than the S-B IQ means. Most test intercorrelations were lower for females than for males. The PPVT is a better overall predictor of the S-B than the G-H. (10 refs.) - (Source: AJMD).

*Glenwood State Hospital-
School
Glenwood, Iowa 51534

900 Milgram, Norman A. A note on the PPVT in mental retardates. American Journal of Mental Deficiency, 72(3):496-497, 1967.

Two hundred and forty institutionalized retardates were administered the Peabody Picture Vocabulary Test, the Wechsler Intelligence Scale for Children Vocabulary, and the Automatic and the Association subtests of the Illinois Test of Psycholinguistic Ability. All scales were highly correlated, but MA scores and intercorrelation were significantly higher for the former 2 tests than for the latter. Deficiencies in linguistic expression by retardates were discussed in terms of minimal stimulation and reinforcement of appropriate language patterns. (5 refs.) - (Source: AJMD).

Department of Psychology
Catholic University of America
Washington, D. C. 20000

901 Smith, Donald C., & Martin, Robert A. Use of learning cues with the Bender Visual Motor Gestalt Test in screening children for neurological impairment. Journal of Consulting Psychology, 31(2):205-209, 1967.

A comparison of the ability of neurologically and nonneurologically impaired children to utilize learning cues to correct rotations of designs on the Bender Visual Motor Gestalt Test tended to confirm the clinical impression that ability to correct rotations is a more discriminating index of neurological impairment than frequency of rotations. The neurologically impaired group consisted of 25 students from the Lancaster, Ohio, public schools; the control group, from the same schools, was made up of children with behavioral or learning problems but no neurological impairment. Procedures of the study, data, and results are discussed, with limitations of the sampling procedure noted. (11 refs.) - (Source: Rehabilitation Literature, 28(9):298, 1967).

Ohio State University
Columbus, Ohio

902 Lamp, Robert E., & Barclay, A. The Quick Test as a screening device for intellectually subnormal children. Psychological Reports, 20(3, I):763-766, 1967.

For a sample of 40 educable retarded children, correlations between Wechsler Intelligence Scale for Children (WISC) and Quick Test (QT) IQs were .53 (Verbal), .32 (Performance), and .50 (Full Scale). The QT mean IQ was significantly higher than the mean WISC Verbal and Full Scale IQs; there was no significant difference between the QT mean IQ and the mean WISC Performance IQ, although the correlation between these scales was somewhat lower. The findings suggest that, as with the adult retardate, the QT assesses functional

language ability of mentally retarded children moderately well and thus may be used in conjunction with other data for screening purposes. (4 refs.) - (Source: PR).

St. Louis University
St. Louis, Missouri

903 Frankenburg, William K., & Dodds, Josiah B. The Denver Developmental Screening Test. Journal of Pediatrics, 71(2): 181-191, 1967.

The Denver Developmental Screening Test (DDST), a test devised to detect slow development in infants and preschool children, was standardized on 1,036 presumably normal representative children in Denver. The DDST consists of 105 test items selected because they required no elaborate equipment and were easy to administer and interpret. The tested population consisted of children between 2 weeks of age and 6.4 years. Children likely to have abnormalities were excluded. Attempts were made to include all racioethnic and occupational groups. The format of the DDST was devised to test 4 categories: gross motor, fine motor-adaptive, language, and personal-social. Chi-square analysis showed that the sample included more children of fathers with professional, managerial and sales occupations than was representative in the city. When the white-collar and blue-collar categories were compared it was found that language functions were superior in children of white-collar fathers when they were 2 years of age or older. Data was presented in terms of percentiles, and children were divided into 75 age categories. The test-retest reliability (1-week interval) ranged from 90 to 100 percent of the same items passed by the same child, and the reliability among examiners ranged from 80 to 95 percent. The DDST compared well with the Yale Developmental Examination in the test of validity. A number of possible weaknesses in this study are suggested. (24 refs.) - R. Froelich.

University of Colorado
Medical Center
4200 East 9th Avenue
Denver, Colorado 80220

904 Money, John, & Wang, Christine. Human figure drawing: II. Quality comparisons in gender-idenity anomalies, Klinefelter's syndrome and precocious puberty. Journal of Nervous and Mental Disease, 144 (1):55-58, 1967.

The quality of human-figure drawings was related to the 5 clinical populations who produced them - 21 male eonists (transvestites and transexuals), 9 phenotypic males with Klinefelter's syndrome, 16 effeminate male juveniles, 16 precociously pubertal boys, and 4 female eonists. Drawings were evaluated according to the Quality Scale method of the Goodenough-Harris Drawing Test. Nineteen male eonists scored over the seventy-fifth percentile. Standard scores subjected to the Mann-Whitney U test revealed that the male eonists' drawings were superior to those of the Klinefelter group ($p < .001$) and those of the female eonists ($p = .05$) and were most similar to those of the effeminate juveniles and the precociously pubertal boys. (4 refs.) - J. Snodgrass.

Johns Hopkins University
School of Medicine
Baltimore, Maryland 21200

905 Hirschenfang, Samuel, Silber, Maurycy, & Benton, Joseph G. Psychological appraisal of the brain injured. Journal of Rehabilitation, 33(5):23-24, 1967.

Differential diagnosis between brain damage, emotional illness, and MR is a complex problem. Information needed to aid in diagnosing includes: (1) physiological, medical, emotional, and educational history; (2) psychometric results; and (3) behavioral observations. Accurate diagnosis is handicapped by lack of definition of a clear-cut syndrome of neurosis or psychopathy in childhood. (No refs.) - J. Snodgrass.

State University of New York
Downstate Medical Center
Brooklyn, New York

906 Zellweger, Hans, & Hanson, James W. Psychometric studies in muscular dystrophy type IIIa (Duchenne). Developmental Medicine and Child Neurology, 9(5):576-581, 1967.

Of 38 boys with muscular dystrophy type IIIa (Duchenne) given psychometric examinations, 16 had IQ scores below 80. The boys were between 2 and 18 years of age and were given a total of 48 psychometric tests. Only patients who met the following criteria were included: typical clinical picture, positive family history, myopathic electromyogram, histological evidence, and elevated levels of

4 serum enzymes (glutamic oxalacetic transaminase, creatine phosphokinase, lactic dehydrogenase, and aldolase). Most of the boys were given the Wechsler Intelligence Scale for Children, but some were tested with the Stanford-Binet Intelligence Scale, Form L. Patients were grouped into those who were ambulatory and those who essentially could not walk. The first group had a mean IQ of 82.6 (range 48-109) and the latter group had a mean IQ of 87.5 (range 60-127). Verbal IQ was usually higher than performance IQ. Age or duration of disease did not significantly affect IQ. In general, the progression or severity of the muscular disease did not affect IQ, except in a few cases where neglect or cultural deprivation was an environmental cause of MR. It was concluded that MR is an intrinsic manifestation of this disease with limited expressivity. (20 refs.) - R. Froelich.

Department of Pediatrics
University of Iowa
Iowa City, Iowa

907 Brown, Roy I. Some problems of assessment in special education. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 2, p. 18-25.

Problems of assessment in special education in Great Britain are described in terms of test content, testing conditions, reliability, validity, and remedial education. Variation in types of tests such as performance and verbal are discussed on the basis of the necessity for determination of specific deficiencies so that remediation can be implemented. Reliability and standardization of testing procedures should be considered, as variables such as unfamiliar testing rooms can affect concentration. The factors of test variation and degree of error are of concern especially when different test results are compared. Cognitive ability as measured by standardized tests may be beneficial when used in combination with social and educational data as well as specific knowledge of learning characteristics. Assessment of this type aids in diagnosis, prediction, and remedial education. (13 refs.) - B. Bradley.

EDUCATION

PHILOSOPHY, ADMINISTRATION, AND SUPERVISION

908 Doll, Eugene E. Trends and problems in the education of the mentally retarded: 1800-1940. American Journal of Mental Deficiency, 72(2):175-183, 1967.

Early practices in the use of the developmental approach, sensory-motor stimulation, concrete and practical instruction, social and vocational training are briefly detailed. Early innovations noted are on-the-job training, the use of the MA in educational placement and vocational prognostication, and differential education for retardates vs. defectives. The positive value of personal adjustment was early recognized, but methods for improving social behavior varied. The rise of differential diagnosis, remedial procedures, diagnostic teaching, comprehensive community plans, the wider use of units, the educational implications of exogenous damage, and adaptations for use in rural areas are traced. (44 refs.) - (Source: AMD)

University of Tennessee
Nashville, Tennessee

909 Nilsson, Ingemar. Current trends in special education in Sweden. Slow Learning Child, 14(1):22-28, 1967.

Through a period of reform the Swedish compulsory comprehensive school program has begun a nation-wide educational program for the handicapped child consisting of individual special instruction or special class placement. The individual instruction plan allows the pupil to remain in his regular class with private instruction provided by a "clinic" usually located in the school. Types of special classes being established are: help for the EMR, observation classes for the emotionally disturbed, impaired hearing or vision classes, reading disability classes, school readiness classes, and classes for the cerebral palsied. Before a child is assigned to any of these special classes, a diagnostic examination and detailed observations of his behavior from the teacher, headmaster, psychologist, and

the school medical officer are required. The decision for special class or clinic placement is contingent upon the forms of available treatment and the extent of the pupil's difficulties. Vocational training is provided to all help and observation classes in the form of practical vocational guidance are given for 6 weeks during the second last year of enrollment. Special class teachers are beginning to receive intensified training in educational methods with emphasis on individualized instruction and group activities that will give handicapped pupils a beneficial and meaningful education. (12 refs.) - J. Melton.

School of Education
Stockholm, Sweden

910 Chazan, Maurice. Recent developments in the understanding and teaching of educationally subnormal children in England and Wales. American Journal of Mental Deficiency, 72(2):244-252, 1967.

The education and training of educationally subnormal children (ESN) in England and Wales are described in terms of recent trends and data on intellectual, social, physical, and emotional development. The term, "educationally subnormal" in England is used broadly and can be applied to about 10 percent of the school population, including those who are educationally retarded but who respond to remedial teaching. This broad approach allows a more flexible attitude toward children with handicaps. Considerations about the nature of subnormality have been influenced by trends affecting the concept of intellectual development: awareness of the effects of environmental influences, the desire to obtain a profile of abilities, and interest in Piaget's work. These trends have had an effect on the kind of research done in the area of education and training for ESN children. From available data, it may be concluded that ESN children in special schools present learning problems, physical handicaps, speech defects, poor family backgrounds, poor school attendance records, and emotional and social maladjustment problems. Developments in teaching techniques for the ESN have been directed toward programmed learning, perceptual problems, structural apparatus, functional teaching, and oral language programs. Physical education programs have become more important. Social training is seen as a major concern, especially in relation to job placement in the community. Future research may focus on pre-school stimulation, milieu therapy, and follow-up services. Multidisciplinary research may stimulate more work in these areas. (46 refs.) - B. Bradley.

University College of Swansea
South Wales, Great Britain

911 Hoeltke, Gary M. Effectiveness of special class placement. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 6 p. Typed.

The effectiveness of special class placement of EMR children was evaluated in terms of self-concept, attitude toward the teacher, academic achievement, social maturity, and behavioral development. Twenty-five EMR in special classes in Iowa were matched with 25 EMR controls on IQ as determined on either the Stanford-Binet or Wechsler Intelligence Scale for Children, CA, and sex. The control group or regular class sample was selected from districts where there was no program or an extremely limited one. All Ss in the experimental group had been in special class programs for 3 or more years and resided in districts where most EMR were placed in special classes. The Wide Range Achievement Test, Vineland Social Maturity Scale, and scales developed to measure attitudes toward teachers, self-concept, and behavioral development were employed for assessment. The Wilcoxon Matched Pairs Test was used to test for significance of the difference between sample scores. Data indicated that special class students held a more positive self-concept than children in regular classes, but regular class children learned more reading, spelling, and arithmetic as measured on the tests. Sex of the enrollee was not a significant factor. The children in both classes showed the same attitude toward their teachers. (3 refs.) - B. Bradley.

University of Kansas
Lawrence, Kansas

912 Meyers, Elizabeth S., & Meyers, C. E. Problems in school placement arising from divergent conceptions of educable children. Mental Retardation (AAMD), 5(5):19-22, 1967.

The 5 case studies presented demonstrate that problems regarding educational placement of

EMRs often result from outmoded sociological and psychological principles and from misconceptions about the nature and degrees of MR. All too often the probable benefits of special education are eclipsed by exaggerated concern with establishing an accurate diagnosis. Because EMR is misunderstood, designating a child for special class placement is regarded as an irreversible decision which educators are reluctant to make without irrefutable evidence of MR. Recommending special placement is thus equivalent to informing parents that their child is in a fixed state of retardation and can never be normal. This concept of fixed diagnosis is based on using IQ as an inflexible classification rather than as a description of learning competence and on disregarding differentiated abilities in favor of the single intelligence score. When labeling and defining are avoided, placement problems will decrease. By recommending special placement, the school is not passing judgment on the child, rather it is responding to his learning problems. The key to good placement is flexibility. Based on consideration of what is best for a particular child at a particular time in his development, it also includes the awareness that the child's academic competence and his differentiated abilities may be modified by systematic environmental influence. Educational description, rather than classification, should be the prime concern. (2 refs.) - J. Zailckas.

No address

913 Crescimbeni, Joseph. Label or libel? What happens when we categorize children? The Instructor, 76(10):21, 71-72, 1967.

labeling a child "slow learner" or "underachiever" should be done with a great deal of thought given to the effects the label has on him as well as on the school's attitude toward and expectations of him. Limited cultural background, emotional insecurity, and lack of motivation may prevent children from achieving their potential, but these underachievers should not be confused with slow learners even though they achieve at the same level. Standardized test results should not be the sole basis of judgment of the child's ability. (No refs.)- E. F. MacGregor.

Jacksonville University
Jacksonville, Florida

914 Mende, Robert. What you should know about teaching handicapped children. School Management, 11(10):91-112, 1967.

There is a need for those involved in the organizational and policy-planning aspects of education to develop special programs for the handicapped in the public schools. After information has been gathered about the number and kinds of handicapped in the school, information should be sought from the various organizations for the handicapped, the state special education department, the special education departments of colleges and universities and the U. S. Office of Education. Since special education teachers are too few in number to fill the growing demand, retraining teachers for service in special education is the most likely source of supply. A federal grant program supports such special training. The community should be involved as much as possible in supporting programs for the handicapped. Sources of teaching materials, places to secure help, descriptions of various handicaps and their prevalence, and various types of programs for the handicapped are listed. (2 refs.) - E. F. MacGregor.

No address

915 Lavender, Joseph. The educator. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 100-102

Connecticut has 535 classes for the TMR and EMR. Current goals emphasize not only vocational and academic progress, but achievement in social, physical, and psychological growth as well. The out-moded "special class" for the MR has given way to the individual learning problems that vary in degree. This procedure takes the trainable and the educable to both regular and special classes. (No refs.) - G. Trakas.

916 Simpson, P. F. Training centres - a challenge. Special Education, 56(3): 4-8, 1967.

The educational aim for all children (normal and subnormal) should be to enable them to

299-809 O - 68 - 8

progress to the limits of their physical, social, emotional and intellectual ability. On the basis of this, the MR training centers should develop curricula which are in line with the student's cognitive and physical development. Since MRs develop more slowly, they need a longer period of schooling than normal children - junior center for ages 2 to 18 years, a transitional center for those 18 to 21, and an adult training center for those beyond 21 years. (16 refs.) - E. F. MacGregor.

Leeds College of Commerce
Leeds, England

917 Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, 72 p. $2.45.

The contents of this volume consist of 9 papers presented at a conference on slow-learning children at Newton Park College, Bath, England. The primary aim was the coordination of information from professional workers in various disciplines in areas of assessment and education. The participants focused on topics such as: work placement, emotional problems, educability, psychotic children, and assessment. This monograph presents a concise overview of some of the problems relating to assessment and education of slow-learning children in Great Britain. (51 refs.) - B. Bradley.

CONTENTS: Educability; Some Problems of Assessment in Special Education; The Social Education and Work Placement of Educationally Subnormal School-leavers; Emotional Problems of the Slow-learning Child; The Social Worker's Contribution; The Assessment and Education of Brain-damaged Children; Development in the Education of Psychotic Children; Memory in the Severely Subnormal; Recent Investigations into Reading with the Severely Subnormal.

918 Saunders, R. V. The assessment and education of brain-damaged children. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 6, p. 44-48.

The problems of assessment of brain-damaged (BD) children in Great Britain are described in relation to their education. The major groups delineated are: (1) cases in which there is medical evidence indicating actual brain damage such as encephalitis and (2) minimal cerebral dysfunction in which there is no direct neurological evidence of damage. The age of onset of damage is of significance in affecting the learning of the child. Some of the BD children have multiple learning handicaps, such as hearing losses, communication defects, poor visual perception, poor manipulation, and limited attention span, which have not been recognized in the classroom. The theories of Hebb, Piaget, and Luria indicate the relationship between intellectual functioning and the interaction between the individual and his environment. Experience has an important role in intellectual functioning and the interaction between the individual and his environment. Assessment of BD children should be attempted before the age of 3 years. Global techniques, including developmental diagnostic examinations and observations, should be used. A wide variety of functioning should be sampled and regular reappraisals are necessary. (9 refs.) - B. Bradley.

919 Williams, Alec A. Educability. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 1, p. 11-17.

The problems of identification, selection, and criteria for special educational training of mentally subnormal children in Great Britain are discussed in terms of intellectual, scholastic, social, and vocational competence. The instability of the Intelligence Quotient is discussed as well as the need for analysis of abilities and potentialities of children rather than relying on a single assessment procedure. Academic attainments are important in predicting successful progress in educational and vocational training but can be evaluated only in relation to personal, social, and environmental factors. Social adaptation as a criteria for prediction of satisfactory community adjustment is limited due to lack of assessment procedures and looseness of definition. Vocational competence is dependent upon acceptable work habits and good personal attitudes on the job. Vocational competence is considered of major importance in guiding the assessment of the educability of the child. (8 refs.) - B. Bradley.

920 Mittler, Peter. Developments in the education of psychotic children. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 7, p. 49-57.

Recent developments in the education of psychotic children in Great Britain are described in terms of the need for systematic evaluation of research in this area. Childhood psychosis is considered to be a relatively uncommon disorder; however, 4 or 5 children out of every 10,000 of the child population are susceptible. There is a lack of knowledge concerning the medical and psychological aspects of childhood psychosis, but even less has been determined concerning educational methods. There has been a lack of systematic and valid research within this area. Inadequate diagnostic criteria are also a major handicap. There are a wide range of disorders and pathologies which psychotic children suffer and generalizations on behavior should be cautious. No one etiology could be the cause of such a wide variety of handicaps. Most of the psychotic children have a barrier to learning - their preoccupation with their private world. One attempts to stimulate interest in other activities and occupations. There may be difficulty in comprehension of word sounds or other speech and language handicaps. Data indicate that a high staff ratio is essential and that the school should be as flexible as possible. Grouping should allow for both verbal and non-verbal children. Frequent contact should be made with other staff members and parents. The need for flexibility and systematic evaluation of work with this population is stressed. (6 refs.) - B. Bradley.

921 Williams, Phillip, & Gruber, Elizabeth Some characteristics differentiating two groups of E. S. N. children. British Journal of Psychiatry, 113(501):875-884, 1967.

Children who respond well to education in special schools generally come from impoverished environments, while those who fail to respond are from a higher socio-economic class but have lower intelligence and more extensive organic damage than the responsive ones. This investigation was designed to identify those qualities which are associated with the response of children to the education that is being provided by the special schools for the educationally subnormal (ESN) in South Wales. Two groups of children were selected: the S group, comprised of "those who responded sufficiently well to warrant a transfer back to the ordinary education system," and the E group, comprised of "those whose lack of response resulted in a transfer out of the educational system - to a training center or to a hospital for subnormal children." After coding and comparing the detailed case histories made available by the local authorities when these children were first recommended for special education, a number of hypotheses were formulated and then tested on data obtained from interviews conducted in the homes of the children. "The 7 significant congenital and developmental items relating to the E group are: presence of handicaps and/or ailments indicative of organic damage, late development of speech - indicated by 'first word,' late development of speech - indicated by use of phrases, late development of walking, late development of toilet training, high incidence of feeding and other disturbances in infancy, high incidence of speech defect." The 2 groups were found to differ significantly on 6 environmental items - anxiety over financial situation, families without mothers or with working mothers, father with a poor health record, siblings in special classes and schools, and fathers without higher education. (22 refs.) - C. M. N. Mehrotra.

Department of Education
University College
Swansea, Wales

FACILITIES, CURRICULAR PROVISIONS, MATERIALS, AND METHODS

922 Frankel, Max G., Happ, F. William, & Smith, Maurice P. Functional Teaching of the Mentally Retarded. Springfield, Illinois, Charles C. Thomas, 1967, 241 p. $9.75.

Distinguishing features of the functional teaching program for MRs developed by Roy McGlone at the Laridon School for Exceptional Children, Denver, Colorado include: (1) de-emphasis on etiology and emphasis on the development of functions, actions, and performances; (2) emphasis on possible abilities, rather than on disabilities; and (3) direction of goals toward equipping the children with skills that will provide them with a wide range of personal, social, and vocational behaviors. Complex activities are analyzed into simple instructional elements that can be combined and re-combined

in many different ways in order to correct deficiencies and permit additional development and transfer. Over 180 devices aimed at motor development, elementary perceptual development, advanced perceptual development, and motor-perceptual coordination have been devised. Specific program objectives include the development of the abilities to: (1) receive impressions and develop them into thought, (2) use these thoughts and impressions as bases for action, (3) use facts discovered by accident, (4) use trial and error procedures, (5) think in a logical fashion, and (6) draw reasonable conclusions from logical thought. Although many of the experiences and techniques were developed for use with TMRs, the procedures may also be used advantageously with EMRs. This professional level book, intended primarily for special educators, should also be of interest to psychologists, occupational therapists, physicians, and parents of MRs. (50-item bibliog.) - J. K. Wyatt.

CONTENTS: Introduction to Functional Teaching; Methods and Means of Functional Teaching; The Relation of Historical and Contemporary Theories to Functional Teaching; Teaching Motor Activities; Initial Perceptual Training; Advanced Perceptual Training; Motor-Perceptual Integration; Case Histories of Several Retarded Individuals Enrolled in the Functional Teaching Program; Areas of Instruction - Basic Physical-Perceptual Development, Advanced and Integrated Physical-Perceptual Skills.

923 Damrauer, Beverly. Reaching the slow learner. Ohio Schools, 45(5):20, 45, 1967.

First grade material was used to instill in slow-learning third-grade children the feeling of success needed to provide incentive for further learning efforts. As their feeling of accomplishment and self-confidence grew, the children became more interested in learning; behavior problems lessened. (No refs.) - E. F. MacGregor.

No address

924 Wells, E. (Mrs.) Training for the blind retarded child. Mental Retardation (Canadian ARC), 17(2):16-19, 1967.

Six MR blind children (CA, 13-16; developmental level, 6 mo to 4½ yrs) who were given highly individualized stimulation and attention responded by achieving greater independence, increased communication, and greater awareness of their surroundings. An occupational therapist conducts the sense training (Montessori method) on the ward for 1 hour daily. The aims of the therapy are to teach size and spatial relationship, improve coordination, provide fine and gross finger movement, teach direction concepts, provide opportunities for self-expression, and teach object recognition. Once a week, the children take a fieldtrip, participate in a rhythm band and take swimming lessons. Observations indicate that the therapy fosters: (1) an atmosphere of happiness, (2) more responsiveness, (3) a decrease in aggressive behavior, (4) improvement in self-care, and (5) increased interest in the environment. (No refs.) - J. Melton.

The Woodlands School
New Westminster, British
Columbia, Canada

925 Rost, Kim J., & Charles, Don C. Academic achievement of brain injured and hyperactive children in isolation. Exceptional Children, 34(2):125-126, 1967.

The cubicle method of reducing stimulation for hyperactive and brain injured children produced no significant improvement in learning. A primary class of 8 Ss (mean CA, 8 years 8 months; mean IQ, 70) and an intermediate class of 13 Ss (mean CA, 11 years 5 months; mean IQ 67) were divided into 2 control and 2 experimental groups. For 5 months the experimental Ss were seated in 3-sided, white corrugated plastic booths for daily silent reading and workbook assignments. The Wide Range Achievement Test revealed no significant differences in achievement between experimental and control groups. Possible reasons for failure to show differences include: (1) limited time span, (2) uncontrolled teacher attitude, and (3) individual pupil problems not related to the study. Isolation in a booth in the classroom appears to have no effect on the achievement of brain injured or hyperactive children. (1 ref.) - M. A. Molnar.

Iowa State University
Ames, Iowa

926 Brereton, Beatrice LeGay, & Sattler, Jennifer. Cerebral Palsy: Basic Abilities. Mosman, Australia, Spastic Center of New South Wales, 1967, p. 166. (Price unknown).

A treatment plan designed for preschool cerebral palsied (CP) children whose functioning level ranges from 3½ to 5½ years was used

for 2 years at the Spastic Center of New South Wales, Mosman, Australia. Following the principle that difficulty in 1 area does not necessarily indicate problems in all areas, trained skills or "basic abilities" are developed before formal academic programs are introduced. The treatment includes touching or feeling objects; body position; motor movement; appreciation of distance, position, and order of objects; visual observation; and selection of objects for attention. Techniques described and illustrated in detail include a check test for a specific difficulty and floor activities for those with a 3½-4½ year level of general intellectual ability. The development of basic abilities in non-handicapped children is analyzed along with a review of work relating to problems of young CP children. Although the book is intended primarily for teachers, physiotherapists, and other professional workers, parents will find the information extremely useful. (76 refs.) - B. Bradley.

CONTENTS: The Basic Abilities Treatment Plan; Obtaining Information From Touching Things: Appreciation of Body Position; Appreciation of the Distance, Position and Order of Objects; Planning the Movement Appropriate to the Situation; Obtaining Information From Visual Observation; Selecting Objects for Attention; and The Theory Behind the Treatment Plan.

927 Bowley, Agatha H. A follow-up study of 64 children with cerebral palsy. Developmental Medicine and Child Neurology, 9(2):172-182, 1967.

The school progress of 64 educable cerebral palsied children who had attended the Cheyne Centre for Spastic Children during their preschool years was followed as part of a longitudinal study to determine the effectiveness of nearly 5 years of physiotherapy, occupational therapy, speech therapy, and nursery education. Diplegics, quadriplegics, and athetoids were almost evenly distributed. Hearing loss was present in 22 percent, visual defect in 30 percent, epilepsy in 34 percent, superior intelligence in 28 percent, average intelligence in 34 percent, and inferior intelligence in 37 percent. Upon leaving the Centre, 11 attended regular schools, 36 attended day schools for physically handicapped children, and 17 were placed in residential settings. Full follow-up reports on the 64 children aged 5-16 years revealed that 28 were making average or better progress, 29 poor progress, and 7 very poor progress. Assessment of parents revealed that the majority were constructive and affectionate in their attitude toward the child. The mothers indicated that their major problems were lifting and carrying the child, rapid deterioration of the child's clothing, little time for their own relaxation, and financial strain. The findings suggest that more adequate methods of meeting the educational needs of these children need to be devised and that practical help and counseling should be made available to parents. (5 refs.) - J. Snodgrass.

Cheyne Centre For Spastic Children
61 Cheyne Walk
Chelsea, London W. W. 3.
England

928 Bruno, Hilda T. Developing social maturity and independence through travel for the educable mentally handicapped adolescent. Paper presented at the 91st annual meeting of the American Association of Mental Deficiency, Denver, Colorado, May 15-20, 1967, 7 p. Mimeographed.

Traveling is a valuable tool in aiding EMR adolescents to attain independence and social maturity. Thirty-three educable MRs went to Expo '67 as part of their high-school program. Also many other similar trips had been made earlier. The outcomes have been very significant. One 18-year-old girl began talking and making personal contacts on one brief trip. The students made money from group projects; this further stimulated self-sufficiency and ability to meet and talk with people. The trip was a direct learning experience for problems of transfer and the development of acceptable personality traits. This type of experience was most valuable for those individuals who came from over-protective homes and were adequate in their job-skill but unskilled in social situations. The trips are part of the school curriculum but not primarily for the academic learning achieved. Retention of learning was increased (compared to that of a control group) after a 2-year period. Of the 40 graduates of this program, all but 2 are working in gainful employment or are housewives. (4 refs.) - R. Froelich.

New Trier High School
Winnetka, Illinois 60093

929 Keenan, Karen, & Cassell, John T. Social skills. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 14-18.

The teacher plays the key role in developing the social skills of children. To demonstrate the techniques that are applied, the teacher and 7 EMRs took active parts in role playing. The activities included: a policeman (teacher) helping a lost boy find his mother; the children driving a car and responding to questions concerning the car, traffic signals, and the weather; and a child visiting a classroom where the teacher and children participate in dancing. The lessons to be learned through the above exercises are realistic in scope. Children have the opportunity to practice and develop good speech, to be aware of rules of safety, to learn to say and spell their names, and to give their addresses and phone numbers. Other concepts that are projected include the teaching of respect for authority (policeman), vocabulary building, colors, and position of objects in the environment. This demonstration is part of the total academic program. The class is comprised of 10 members who work in individualized programs. A video-recorder is utilized to record the progress and/or regression of each child. (No refs.) - G. Trakas.

930 Tolley, J. N. The social education and work placement of educationally subnormal school-leavers. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 3, p. 26-30.

The need for social education in work placement of educationally subnormal school-leavers in Great Britain is described in terms of the school's role and responsibility. The school can aid in establishing sound family and community attitudes by incorporating some social training in this curriculum. Preparation for appropriate leisure activities should be started in school so that the student can prepare for and enjoy his recreation. Social learning involves establishment of correct employee attitudes, knowledge of community services, and some trial employment opportunities. The school should play a supporting role at the point of transition to employment within the community. (No refs.) - B. Bradley.

931 Handy, Joseph S. Sex education: The psychological approach - who and where. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 8 p. Mimeographed.

Sex education may be given to all MRs who potentially are able to live in a community, express an interest, and show an adequate sense of responsibility. It is obvious that MR children, as they sexually develop, will be curious, will masturbate, and experience physiological changes. In many ways, the moral and psychological problems that occur with MRs are the same as for normal individuals. Although MR adolescents will have many problems similar to normal adolescents, societies confronting this may cause different reactions. Since sexuality is dependent on cumulative conditioning, the attitudes of significant adults are of more importance than the teaching of factual knowledge-which is also quite important. The total approach to sex education is preferred with involvement of the parents, school, church, community, and institution. The conflict and inconsistency of philosophy that will occur with the total approach may have to be considered. The advantage of the total approach relates to the scope of sexuality in a person's life. There is a need in the area of sex education not only for the MR but for all young adults. (4 refs.) - R. Froelich.

Brandon Training School
Brandon, Vermont

932 Werner, Geraldine. Sex education: The physiological approach. What? How much? Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 5 p. Mimeographed.

The methodological and philosophical approach used for sex education at a Day Care Training Center is described. The Training Center has 140 MR children ranging from newborn to 16 years of age. The IQ distribution has 34 percent below IQ 34, 31 percent between IQ 35-50, 24 percent between IQ 50-75 and 11 percent undetermined. Sex education begins at birth, since an infant's feeling of security, welcome, tenderness, and warmth is a positive sex education of a kind. The children should learn the real names of body parts as well as their function. Masturbation should not be punished but can be discouraged in a number of ways - mainly by distraction. The next big step in education is near to the time of puberty. The explanation depends on the ability of

each individual boy or girl to understand. All girls should be told about menstruation before it occurs to avoid unnecessary fears. (13 refs.) - R. Froelich.

Day Care Training Center
for Handicapped Children
Rochester, New York

933 Ginglend, David. Music and rhythmic activities. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 35-39.

Other than intellectual development, the importance of music and rhythmic activities in the MR's curriculum helps to establish sound mental health, as well as to increase social, language, and physical growth. Music and rhythm aid in structuring self-identity and supply an outlet for physical and emotional stresses. Group participation demonstrates the social concepts of self-discipline and control. Music brings about the development of language skills auditorily; once MRs learn to listen to music, they can relate these sounds to other forms of learning. Acquiring a rhythmic sense helps body coordination in physical development. Illustrated exercises, suggestions, and recommendations are offered which incorporate the above concepts. (3 refs.) - G. Trakas.

934 Novello, Joseph W. Music is effective in special classes. ICRH Newsletter, 3(2):1, 3, 1967.

Educable deaf, palsied, and brain-damaged children do very well in music classes taught according to Carl Orff's philosophies. The improvisational exercises provide opportunity for feelings of accomplishment. The experience helps the child become more tractable and teachable. (No refs.) - J. Snodgrass.

Madera County Schools
Madera, California 93637

935 Dobbs, J. P. B. The Slow Learner and Music: A Handbook for Teachers. London, England, Oxford University Press, 1966, 102 p. (Price unknown).

This handbook summarizes the results of British experiments to determine the value of music for slow learners. Slow learners are defined as: "children of any degree of ability who are unable to do work commonly done by children of their age." Their common bond is the need of a special education designed to help them develop their mental potential to its fullest extent. Music has a contribution to make to the education of slow learners, for it can be utilized to express emotions, stimulate more purposeful living, insure success in activities without fear of failure, engender confidence, and impart information. The chapters report the results of a process of experimentation and exploration accomplished by teachers in various parts of Great Britain over an extended period. Although the book is addressed to teachers of slow learners, it would be helpful to parents, psychologists, school supervisors, and recreation leaders. (No refs.) - M. E. McKee.

CONTENTS: The Children - and the Value of Music to Them; Music in the Life of the School; Singing Together; Playing Instruments; Listening to Music; Movement and Dance; The Relation of Music to Other Subjects.

936 Dowsett, Doris. 'Modern movement" in a gateway club. Teaching and Training, 5(3):108-110, 1967.

A 5-year program of once-a-week training in the Margaret Morris Method of "modern movement" dancing resulted in great progress for a class of the mentally and physically handicapped, aged 4 to 40 years. Modern movement uses only medically correct exercise and is based on the natural movements of the body. When speech was incorporated with movement, nonverbal children began to speak and were able to reproduce verbally the exercises for family and friends. Starting the training at an earlier age might benefit the MR. (No refs.) - E. F. MacGregor.

No address

937 Gilgert, Valerie Y. Art of Graphic Communication. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 8 p. Mimeographed.

Selected resist art media have been utilized with TMRs (CA, 7-18) over a 5-year period to encourage speech, improve self-concept, and provide leisure activity. Physical activity precedes the art, with the teacher encouraging the pupils to portray graphically what they have experienced. The child selects his own colors and paper so that he can have sensory, visual, tactile, and kinesthetic experiences. Activities include: (1) laminated wax paper, (2) crayon with water color overlay, (3) sponge, stencil, or gadget printing, (4) mobiles and stabiles, (5) draw-a-person, (6) strong printing, and (7) colored tissue painting. (5 refs.) - B. Bradley.

18701 Harleigh Drive
Saratoga, California 95070

938 Cassell, John T. Arts and crafts. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 40-45.

The activities of children in arts and crafts are of value in total development. However, there has been an archaic belief that this is all the MR can achieve. If the MR do well in arts and crafts it is because they have learned how - not because they instinctively work well with their hands. MRs do well in this medium because of the concrete evidence of accomplishment. To successfully teach arts and crafts, sequential steps must be taken. A segment of an alphabet book lists the kinds of materials that can be utilized to develop the steps. It includes M for macaroni, U for utensil, and other materials listed alphabetically. Arts and crafts provide social growth through learning to share, follow instruction, and accepting failure and correction. Eye-hand coordination is gained through play with educational toys, and muscle control is improved with materials that stress gross to fine movements. (4 refs.) - G. Trakas.

939 Robbins, Melvyn P. Test of the Doman-Delacato rationale with retarded readers. Journal of the American Medical Association, 202(5):389-393, 1967.

Three of the 7 basic tenets of the Doman-Delacato theory of neurological organization were investigaged in a study of the reading development of retarded readers. Ss were 149 students enrolled in summer reading programs for a 2-month period. Children were randomly assigned to control, experimental, or nonspecific groups. The control group followed the normal curriculum. The experimental group followed the regular curriculum plus a program advocated by Delacato which included: a home program of two 15-minute periods of cross-pattern creeping, two 15-minute periods of cross-pattern walking, no music, sleep patterning at night, and lateralization activities wherever appropriate; and a school program of cross-pattern creeping, sleep position work, cross pattern walking, and color filtration. The nonspecific group had a regular curriculum plus a home program of two 15-minute periods of active sports, one 15-minute period of quiet games, increase in all musical activities, nonspecific sleep position at night; and a school program of nonspecific color filtration and a 30-minute period of miscellaneous musical activities and nonspecific sleep positioning. Data did not support the postulated relationship between neurological organization as measured by creeping and laterality and reading achievement. The theory was not supported. The addition of the Delacato program did not enhance reading development. (15 refs.) - B. Bradley.

102 Bloor Street West
Room 910
Toronto 5, Canada

940 Mein, Richard. Recent investigations into reading with the severely subnormal. In: Brown, Roy I., ed. The Assessment and Education of Slow-learning Children. London, England, University of London Press, 1967, Chapter 9, p. 65-72.

Reading problems of the severely subnormal children in Great Britain are analyzed in terms of recent research investigations relating to the learning characteristics of this population. Data from studies comparing oral vocabularies and reading skill indicated that severely subnormal children learn to read words already established in

their oral vocabularies better than words not used in this manner. It was concluded that reading for severely subnormal children can be improved if based on meaningful spoken vocabulary. A second series of studies on pictures and reading indicated that children below the IQ of 50 can be taught to read words and sentences and that they can be discouraged from an over-dependence upon pictures in the early stages of learning. Experiments involved methods which focused on considerable repetition and rewards. Investigations of this type aid in evaluation of the learning characteristics of the MR. (7 refs.) - B. Bradley.

941 Brownsword, Elizabeth. Reading for grown-ups. Parents' Voice, 17(4):21-22, 1967.

Mentally handicapped adults until recently were unable to find reading material of suitable vocabulary and interest level. The "Out With Tom" series of 18 books, 6 of which are already published, is designed for the reading development of these individuals and includes a minimum basic sight vocabulary with 11 new words in each book with its interest level being stimulating in terms of their own problems. (No refs.) - C. A. Pepper.

No address

942 Brownsword, E. A. Reading for the slow learning adult. Teaching and Training, 5(3):99-104, 1967.

The Out with Tom series utilizes a phonetic approach designed to meet the special needs and interests of the illiterate and semi-literate adult having a sound knowledge of the Social Sight Vocabulary. Phonetic, rather than alphabetical, units are presented as the building blocks from which words, or combinations of sound units, are made. Average vocabulary increase is 11 words per book, and new words are taught by emphasizing basic sound units rather than by alphabetical analysis. By narrating the work and social experiences of a young adult, the 18-book series not only enriches the reader's vocabulary and improves his reading skill but also gives him useful information about behavior in a variety of real life situations. To avoid any appearance of childishness which might embarrass young adults, the format, story material, and vocabulary are purposely different from that of children's books. (No refs.) - E. F. MacGregor.

Social Education Department
Monyhull Hospital
Birmingham, England

943 Scagliotta, Edward G. Tinker boards - a tactile kinesthetic approach to learning. Exceptional Children, 34(2):129-131, 1967.

Integration of tactile kinesthetic and psychomotor functions to gain the perceptual motor skills required for academic achievement is facilitated by use of tinker boards. A tinker board groups familar objects on a board so as to provide controlled opportunity for manipulation practice. Tinker boards may include hardware, gears, plumbing, jar-lids, fasteners, electrical equipment, and human forms. Construction diagrams are provided. Tinker boards are recommended to stimulate motivation and to provide practice in the tactile kinesthetic skills basic to future learning. (No refs.) - M. A. Molnar.

The Midland School
North Branch, New Jersey

944 Cram, Yetta. The newspaper as teaching aid. National Association of Secondary School Principals Bulletin, 51(321): 64-66, 1967.

In a tenth-grade Consumer Economics course (with slow-learning students) pertinent newspaper articles were used as a connecting link between general economic concepts and specific, real-life experiences familiar to the students. By progressing from the more familiar to the less familiar ideas, many of the students develop an understanding greater than their apparent potential. (No refs.) - E. F. MacGregor.

No address

945 Ohio. Education Department. Suggested Basic Materials for Slow Learning Children. Allen, Amy A., & Cross, Jacque L., eds. Columbus, Ohio, 1967, 118 p.

Language arts, arithmetic, social studies, and science materials are evaluated and

grouped according to appropriate instructional levels. Instructional materials for slow learners should be selected to fit the age, mental maturity, and social development of each child. Program goals for primary, intermediate, junior high, and senior high pupils differ. Selected materials are available for the general elementary grades, but not for the high school level. Inappropriate use of high school materials early in a special education program may negate their value at a later time and may reduce the number of effective high school resources available to teachers. (46 professional refs.) - J. K. Wyatt.

TEACHING PERSONNEL

946 Unkovic, Charles M., & Boyd, Joan E. The elementary teacher, the mentally retarded child, and his family. Australian Children Limited, 3(1):4-11, 1967.

An elementary teacher needs to be aware that MR is not only an individual handicap but also a family handicap. Assistance to the parents is important if the child is to be accepted. The elementary teacher is in a position where she can help the parents (1) indirectly - by reporting a child's abilities and disabilities and by encouraging class and community acceptance of this child, and (2) directly - by providing information with regard to referral sources and discussing with the parents a realistic view of the child in terms of aspirations and fears. (9) refs.) - C. A. Pepper.

Cleveland State University
Cleveland, Ohio

947 Buss, F. Howard. The role of the teacher as a therapeutic agent. Forum, 4(1):30-35, 1967.

Teachers of handicapped children need to be knowledgeable in basic subject matter and methodology. Training of teachers of handicapped children should enable the teacher to become the leader of a group instead of a distant participant. He should receive training in sound educational concepts and psychodynamics and pathology of children. This should be done on the graduate level rather than during the undergraduate years. Courses in social and emotional development of the typical child should be included as well as courses designed to improve teaching skills in language arts (especially remedial reading), sciences, and mathematics materials. The most controversial aspect of teacher training for the handicapped child is group therapy. A course in group experience in the graduate sequence would be helpful. The practice teaching method of throwing the new teacher into a large class should be abandoned. The teacher should have the children on an individual basis for a week before meeting the class as a whole. The suggested training revisions would allow the teacher to become a therapeutic agent. (No refs.) - J. Melton.

No address

948 Platt, Henry. The role of the teacher in the rehabilitation of the atypical child. Forum, 4(1):44-47, 1967.

Essentially the MR has the same needs and feelings as anyone else in spite of his handicap, and the teacher's attitude can determine, in large measure, what kind of individual the student will become. Expectations should not be too low so that he does not develop to his full potential, nor too high so that he becomes frustrated. Adequate preparation for social adjustment in the community and on the job is as important as the acquisition of job skills. Group counseling is a great aid in helping the MR achieve the proper social attitudes and make the necessary personality adjustments. Strict but friendly supervision seems to be the best approach for the adolescent MR. (No refs.) - E. F. MacGregor.

No address

949 Selvaggio, Vito J. The role of the teacher in the rehabilitation of the atypical child. Forum, 4(1):47-50, 1967.

Although all possible academic training should be given them, a rehabilitation program for MRs should have the primary goal of job placement. Teachers can help initiate these programs by determining what kinds of jobs are available in the community, requisitioning supplies that are in line with a work training program, and teaching the children such basic requirements as

cleanliness, good grooming, courtesy, punctuality, and completing the task. (No refs.) - E. F. MacGregor.

No address

950 Young, Robert. The role of the teacher in the rehabilitation of the atypical child. Forum, 4(1):50-51, 1967.

Planned programs of physical activities stimulate the MR to greater success in a variety of areas including vocational skills, social adjustment, and the wise use of leisure time. Some suggested teaching procedures are: progress slowly, show kindness and understanding, introduce new activities early in the session, give clear directions, include rhythmics, stress good health habits, and keep records of progress. (No refs.) - E. F. MacGregor.

No address

VOCATIONAL HABILITATION-REHABILITATION

951 Kliebhan, Joanne Marie. Effects of goal-setting and modeling on job performance of retarded adolescents. American Journal of Mental Deficiency, 72(2):220-226, 1967.

Goal-setting and modeling - techniques based on two social learning theories - were implemented in an on-going work training program for 48 retarded male adolescents with a mean IQ of 59. Production increased significantly, and work quality was found to be superior to that of a control group performing under traditional methods. Results suggest that the work potential of adolescent retardates can be effectively augmented by both personal and social motivational factors. (18 refs.) - (Source: AJMD).

The Cardinal Stritch College
6801 North Yates Road
Milwaukee, Wisconsin 53217

952 Huddle, Donald D. Work performance of trainable adults as influenced by competition, cooperation, and monetary reward. American Journal of Mental Deficiency, 72(2): 198-211, 1967.

Forty-eight TMR Ss (CA range, 18-40 years) were equally divided into a reward and a no reward group. The groups were further divided into sub-groups working individually, competitively, and cooperatively. Monetary reward was given the reward sub-group Ss for performing the experimental task, which was a regular industrial task. An analysis of covariance showed that the reward group performed significantly better than the no reward group. No significant differences in performance were found between the various sub-groups. Systematically collected anecdotal data indicated that competition may be an important factor in the workshop performance of trainable adult males. (11 refs.) - (Source: AJMD)

Indiana University
Bloomington, Indiana

953 Bloom, Wallace. Effectiveness of a cooperative special education vocational rehabilitation program. American Journal of Mental Deficiency, 72(3):393-403, 1967.

Action taken in the Texas program to improve the attitudes and personalities of high school age EMR students had been effective. In the advanced training levels, 120 Ss had significantly different scores on factors measured by the Gordon Personal Profile and the Peck Sentence Completion Test. Personality differences were also attributed to sex, life style of the family, and receipt or non-receipt of pay while on job training, but not to ethnic or age differences. (13 refs.) - (Source: AJMD).

114 Atwater Drive
San Antonio, Texas 78213

954 Ostlund, Leonard A. Human relations students' opinions concerning vocational placement of the handicapped. Rehabilitation, 62(July-September):43-45, 1967.

Analysis of questionnaire data obtained from 244 students (90 women, 154 men) enrolled in a human relations course revealed that 94 percent of the men and 87 percent of the women believed that job placement is more

difficult for the mentally handicapped than for the physically handicapped. Reasons given for job placement difficulty were low work potential, social stigma, lack of available jobs, and need for constant supervision and special training. When presented with 2 categories of the mentally handicapped - MRs and individuals with a previous history of mental illness - the students thought job placement would present equal difficulty for either group. Job placement for individuals who had previously been mentally ill was considered to be difficult because of the possibility of recurrence of the illness, social stigma, and adjustment problems. Student answers to the questionnaires indicated a trend toward negative stereotyping of the handicapped. Later discussion of the material revealed a general lack of information concerning the problems of the handicapped. In addition to its use as a source of information concerning student attitudes, the questionnaire method can be used as a teaching device. (5 refs.) - J. K. Wyatt.

College of Education
Ohio University
Athens, Ohio

955 Gorelick, Molly C. An assessment of vocational realism of high school and post-high school educable mentally retarded adolescents. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 4 p. Typed.

An investigation of variables related to post-school employment success for 149 EMRs yielded significant correlations between employment success and graduation status, race, and number of times in a work education program for males, and between employment success and job-seeking behavior for females. Males who came from middle-income Caucasian families and graduated from a school with an effective work-education program worked more hours each month. Females who sought a greater number of jobs and sought realistic employment had greater employment success. A comparison of high school vocational plans, aspirations, and education with post-high school attitudes indicated that male high school students with unrealistic attitudes continued to be unrealistic. Realistic males were realistic while in school but did not maintain their realism over time. No-plan males with unrealistic aspirations maintained their same level of aspiration in the post-school follow-up. Realistic males tended to be middle-class Caucasians from father-present homes and no-plan males tended to be lower class Negroes from father absent homes. No correlations in these areas were found for females. (No refs.) - J. K. Wyatt.

No address

956 Burrow, Will H. Job development, a problem in interpersonal dynamics. Training School Bulletin, 64(1):12-20, 1967.

A unified and comprehensive approach to job development has been formulated by the Mansfield Project, a prevocational experience program for the MR sponsored by the U. S. Department of Labor. The aim of the project was to demonstrate that mildly retarded young people can function adequately in a variety of competitive work situations. Over 350 employers in a 1,500 square mile area of northeastern Connecticut were contacted. Experience with the prevailing misconceptions about the nature of retardation and the concomitant implications for vocational adjustment dictates that the job development specialist should start by imparting a realistic employer attitude towards MR. Initial contact should be made with a person of real authority in an area having possible positions for the MR, preferably one who is receptive to the idea of hiring the handicapped. "Entry prospects will depend on the efficiency of on-going training programs and on the quality of rapport development with large numbers of local employers." Although sex (males are easier to place) and the general job market are significant variables, age seems to have no effect on placement. Job finding, employer contact, employee preparation, synthesis, and follow-up are the major steps in job development. (No refs.) - C. M. N. Mehrotra.

Mansfield State Training
School
Mansfield, Connecticut

957 Tichauer, E. R. Ergonomics of lifting tasks applied to the vocational assessment of rehabilitees. Rehabilitation in Australia, 5(1):16-21, 1967.

Application of ergonomical and biomechanical principles to rehabilitation is useful for vocational assessment and in the development of work tolerance levels. In evaluating the effects 3 factors are to be considered: the distance from the point of support to the center of the mass of the body segment used, the weight of the body segment used, and the

duration of the task in units of time. Three examples are discussed with the implications that (1) standard lifting rules should apply to females, but with males the dimensions of the work surface may need to be altered; (2) narrow work benches should generally be used; and (3) consideration should be given to the lighter loads which paradoxically increase the work stress. (7 refs.) - C. A. Pepper.

Institute of Rehabilitation Medicine
New York University
New York, New York

958 Pedrini, D. T., Krusen, Margaret M., & Lavis, Leonard W. Habilitation at a state school for the retarded. Psychiatric Quarterly Supplement, 40(1):37-44, 1967.

A 6-level habilitation ladder is being used at Glenwood State Hospital-School, Iowa, to provide a better classification method for planning long-term progress for the residents. The levels are: (1) low functional residents (IQs, 0 to 25) able to learn the rudiments of self-help and, under close supervision, perform such simple tasks as bed making; (2) middle functional residents (IQs, 20 to 50) can attend school up to primary level and, under some supervision, learn pre-vocational skills; (3) high functional residents (IQs, 40 to 75) can attend school to intermediate level and learn prevocational skills with some unskilled and a few semi-skilled occupations; (4) vocational habilitation residents (moderate to borderline MRs, CA usually above 18 years) can participate in intramural self-government, attend school through intermediate level and do unskilled and some semi-skilled and skilled work with little supervision; some eventually are able to return to the community; (5) cadre-employees (CA, 18-40) perform well on unskilled and semi-skilled jobs with some supervision, live in separate quarters (semi-supervised), and share both patient and employee benefits; some go into the community, but most continue to work at state and county institutions; and (6) trainee-employees (mildly retarded to borderline, CA 19-56) live apart from the patients and generally come and go as they wish; most go into the community. IQ, CA, school achievement, physical characteristics, personality, and work records are considered in determining the level of each resident. Periodic re-evaluation by the "therapeutic team" allows the resident to climb the habilitation ladder as he progresses in his abilities. (7 refs.) - E. F. MacGregor.

Glenwood State Hospital-School
Glenwood, Iowa

959 Kreuter, Mortimer. Vocational rehabilitation of social offenders. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 17 p., Mimeographed.

The rehabilitation of the social offender is affected by current social trends. Increased state and federal control of funds and programs (which produces greater centralization of programs), the struggle of minority groups for civil rights, increasing urbanization of the population, automation of industry, and increased use of therapy to socialize individuals are trends which have important implications for vocational rehabilitation. Professionsals must seek out opportunities and prepare clients for the modern job market. Rehabilitation could make use of such notions as Perl and Reissman's new careers for the poor. Professionals must avail themselves of members of their own institutions who could serve as realistic role models for the inmates such as maintenance men, clerical workers, and attendants. Research is needed in such areas as systems analysis of institutions and field research must be continued. (8 refs.) - Author abstract.

Center for Urban Education
33 West 42nd Street
New York, New York 10036

960 Bair, Howard V., & Leland, Henry. The utilization and design of physical facilities for the rehabilitation of mentally retarded. Project News of the Parsons State Hospital and Training Center, 3(6):1-13, 1967.

A 3-year grant from the Vocational Rehabilitation Administration was used by Parsons State Hospital and Training Center in order

to: (1) investigate the most effective use of new facilities and personnel in a multidisciplinary rehabilitation center; (2) develop effective training methods and techniques; (3) develop applied research and professional training demonstration units; and (4) develop coordinating procedures aimed at producing the optimal use of staff and facilities and minimal interference and conflict of interest among the various programs. The results of this study indicate: that new facilities and materials should be flexible; architectural considerations should include discussions about programming; physical facilities should be designed around the concept of a "teaching hospital" because residential institutions should assume major responsibility for professional training; equipment and materials planned for program development and expansion should emphasize closed-circuit television and audiovisual facilities and should be acquired on an experimental basis; hospital design should consider changing community needs; programs should be geared to community interaction and transition; and service, research, training, and demonstration areas should be coordinated in ways that will allow multidisciplinary cooperation. (No refs.) - J. K. Wyatt.

Parsons State Hospital and
Training Center
Parsons, Kansas

961 Speijer, N. Le retardé mental dans l'atelier protégé. (The mentally retarded in a sheltered workshop). Nos Enfants Inadaptes, 24(4):19-23, 1967.

Three considerations involved in a sheltered workshop are the worker, his work, and his salary. Social rehabilitation is the goal for the worker; this includes finding him a suitable job. Thus, the workshop is designed to simulate normal working conditions. Because the work must also be suited to the individual, it is necessary for the workshop to produce many products. Factors considered when matching the worker and his work include: (1) intelligence, (2) physical ability, (3) physical stamina, (4) muscular coordination, and (5) cooperation. Unless the job is adapted to fit the individual's capabilities, satisfactory work is impossible. In order to approximate normal working conditions, the worker is paid a salary based on the quality and quantity of work, the individual's ability to get along, and the care exercised with the material and machines. (No refs.) - C. A. Pepper.

Universite de Leyde
France

962 Paour, Jean. L'Institut Médico Professionnel initie les enfants aux techniques et outillages. (The medical and professional institute introduces the children to techniques and equipment). Nos Enfants Inadaptes, quarterly review (special issue):12, 13, 1967.

The Medical and Professional Institute tries, in 2 stages, to give its residents some practical skills to help them become useful adults. In the past there was no other solution than at the maximum institution age of 16 to send these children home - where they would lose quickly the little they had learned. In the first stage they are introduced to a wide range of techniques and equipment which could be learned for a profession. In the second stage, the Ss serve apprenticeship in the areas of their greatest proficiency, where they are introduced to several professions demanding the same aptitudes. (No refs.) - D. Bammel.

No address

963 Marra, Joseph. Vocational rehabilitation. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 108-110.

In Connecticut the Vocational Rehabilitation Division functions as a unit of the State Department of Education. There are 11 offices throughout the state that maintain a program for all handicapped people including the MR. A major goal is to get clients rehabilitated so that they may return to the community as

productive members of society. A thorough diagnosis is conducted to determine the nature and limitations of the handicap and to screen clients to ascertain who can benefit from the program. Individual needs are administered whether they be medical or training. Subsistence is provided to the needy client. At the completion of the service program and job placement, a follow-up is done to determine the progress and adjustment of the client. (No refs.) - G. Trakas.

964 Gellman, William. New directions for workshops meeting the rehabilitation challenge of the future. Rehabilitation Literature, 28(9):283-287, 1967.

The history of workshops and the recent changes in terminal, transitional, and sheltered workshops are presented along with a forecast of future developments. The terminal workshop is becoming both an activity center and a transitional workshop designed to enable the handicapped to participate in competitive employment. In the vocational adjustment workshop, the psychosocial aspects of work adjustment are being stressed. Through counseling in vocational and personal adjustment and work trials in industry, clients are prepared for eventual outside employment. These changes have come about as a result of the following factors: (1) the Vocational Rehabilitation Act Amendments of 1965, (2) the socioeconomic changes in the labor market resulting from automation and cybernetics, (3) growing numbers of the severely disabled, the emotionally handicapped, and the socially disadvantaged, and (4) increasing integration and unification of previously specialized rehabilitation services. Eventually the workshop will become a noncompetitive system existing in conjunction with the competitive labor market. The system will provide access to health and welfare facilities as well as vocational education and training. The workshop of the future will be transitional rather than terminal, a rehabilitation center designed to equip its clients with the personal and vocational traits necessary to function as productive members of society. (9 refs.) - J. Melton.

No address

965 International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, 53 p. (Price unknown).

The symposium on sheltered employment dealt with the problems of training, staffing, legal rights, administration, and finance involved in providing optimal sheltered employment for MRs. The responsibility of central and local government agencies and the right of the mentally handicapped to be included in employment programs are emphasized. Training should focus on social adjustment and knowledge of job skills. Job tasks may be broken down into simple operations. Systematic and individualized training procedures are most desirable since sheltered employment is concerned with productive and profitable employment supplied under proper conditions for the needs of handicapped people. Continuity of service is stressed with open employment as a final goal whenever possible. More accurate assessment of individual abilities and job requirements is needed. Personality development and on-the-job behavior characteristics merit as much attention as productivity. The sheltered workshop should have an industrial atmosphere and modern equipment. Staff training must be current so that new methods and concepts can be presented. Close association with trade unions allows integration with vocational activities within the community. The establishment of a new sheltered workshop program involves consideration of the area to be served, transportation facilities, size of population, and the possibility of mixing physically and mentally handicapped persons. Supporting documents from other seminars on sheltered employment are included. (No refs.) - B. Bradley.

CONTENTS: Aims of Sheltered Employment; Work Projects and Work Conditions; The Optimal Size of Sheltered Workshops for the Mentally Retarded; Problems of Mixed Handicapped in a Workshop Setting; Educational and Social Training in the Sheltered Workshop; Staffing Problems of a Sheltered Workshop; Training for Sheltered Work; Legal Aspects of Sheltered Employment for Mentally Retarded; Organization, Financing and Wages; Conclusions and Recommendations; and Supporting Documents.

966 Dybwad, Gunnar. Aims of sheltered employment. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 7-8.

The aims of sheltered employment for the MR must be developed within the framework of basic international agreements which strive to safeguard the individual's dignity and

personality development and assure him the right to social security and the right to work. Instead of functioning as a closed system, sheltered employment should operate in conjunction with other community services to provide rehabilitation programs which will establish the MR as a working adult member of society. It should be related logically and functionally to existing statutory provisions and should be functionally related to previous education and training. (No refs.) - A. Huffer.

967 Wehrmeijer, J. W. Work projects and work conditions. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 9-11.

Sheltered employment is described in terms of work projects and conditions in the Netherlands. Production is dependent upon many variables such as education and training, personality, CA, incentives, and family relationships. In the Netherlands, all the mentally handicapped children from 6-15 are compelled to attend a special school, where the majority remain until 18 years of age. The latter part of their education is directed toward training for employment in the sheltered workshop. Most of them finish school and enter the sheltered workshop program. Training is not only vocational but also includes social training and community adjustment. In initial stages productivity is not the major purpose. The mentally handicapped are evaluated by a team to determine potentialities, and the tasks in the workship are analyzed so that the trainees can learn the required skills. Some of the complicated work requirements can be simplified, and gadgets can be employed to aid in production. It is unwise to think that only simple tasks can be done because the demand for this type of work is very limited. Proper materials are essential in securing good work. A conveyor belt with speed regulation may prove beneficial. The choice of products is crucial in planning sheltered employment. Excessively simple work tasks may lead to boredom and fatigue, while over-complicated work skills may result in discouragement. Typical workshop tasks include: packaging, metal working, assembling telephones, making artificial flowers, and labeling bottles. The mentally handicapped should have well-equipped workshops with good working conditions and supervision. A canteen is needed. Transportation of goods and products should be minimized. The mentally handicapped can work 5 days a week and 7-9 hours a day with some time allotted for sports and recreation. Transporation to the workshop is a major concern, and traffic education should be given. State financial support is required. (No refs.) - B. Bradley.

968 Hutchison, Alexander. The optimal size of sheltered workshops for the mentally retarded. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 13-15.

Adult training centers should provide training for a wide variety of retardates and should offer an extensive range of activities, the choice of which will be influenced by the location of the center. The goal should be to develop each trainee to the best of his ability. The proposed ratio of training centers in England and Wales is 0.6 per 1,000 MRs, but an increase to 1.0 per 1,000 MRs may be warranted. Since social activities are also involved in training for the MR, segregation of sexes in the workshop may not be beneficial. The primary factor in planning a sheltered workshop is availability of transportation. Hostels may be used in rural areas with the trainees returning home for weekends. The training centers should include a recreation room and kitchen and dining facilities for noon meals. The British Ministry of Health suggests that normally the size of the workshop should range between 40-120 trainees, depending on location. Rural workshops will be small, while in urban sections it will be more economical to establish centers that will accommodate over 100 trainees. Larger centers allow more flexibility in development and production. (No refs.) - B. Bradley.

969 Wehrmeijer, J. W. Problems of mixed handicapped in a workshop setting. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 17-18.

The advantages and problems in employing mixed handicapped workers in sheltered workshops are discussed. Of the 200 sheltered workshops in the Netherlands, only a few are designated specifically for the mentally

handicapped; the majority are mixed in regard to sex and handicap. Problems in mixing handicapped persons may occur if they are required to work together without their prior consent. It is essential to determine the right type of work for the mixed groups. Severely mentally handicapped persons should not work in the same building with the same materials and manager as physically handicapped persons. One advantage of mixed groups is that the physically handicapped can carry out difficult tasks, check products, and serve as assistants to the leader. Another advantage is that there is one organization, one staff, and less cost for supervision. Mixed groups appear inadvisable for the youngest of both groups because they require such different educational and vocational training. However, mixed groups of physically and mentally handicapped persons are possible for an older population. A good leader who understands the problems of both groups and who can make full use of their respective abilities is essential. One organization for the 2 groups is recommended. A separation of the physically handicapped with normal performance and the SMR is required. (No refs.) - B. Bradley.

970 Flanders, B. H. Educational and social training in the sheltered workshop. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 19-20.

In a sheltered workshop for MRs, it is necessary to provide social training as well as vocational preparation. The aim of any training should be to improve the functioning level of the individual in society. Workshop training is insufficient as an ultimate goal for the retarded. The retardate also needs training in work skills, desirable personality traits, and social graces. Programs emphasizing social skills should parallel industrial training. A period of transition extending from academic training to work projects may be required. Social training may involve determining deficiencies and programming required skills individually for each retardate. Stages involved in the social training of the retardate are: (1) preparation teaching, (2) practical situations, (3) work and social trial periods, and (4) open employment. Underestimating the retardate's ability to profit from training may decrease motivation. Overestimation of the depth of skill needed to function in society may prevent placement of some retardates who could function satisfactorily within the community. The total developmental needs of the MR person should be considered. (No refs.) - B. Bradley.

971 Sommer, J. J. Staffing problems of a sheltered workshop. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 21-22.

The recruitment of staff for sheltered workshops in Germany is discussed on the basis of need, training, and personal and professional qualifications. Full-time positions are suggested for a director, a work supervisor for each group of 8-10 mentally handicapped persons, and a co-ordinating supervisor in charge of 30 mentally handicapped persons. The co-ordinating supervisor has administrative duties and also provides the transportation facilities. Physicians, psychologists, and vocational teachers may work on a part-time or full-time basis depending upon the size of the workship. Personal qualifications include a desire to help the sick and the weak, good physical and mental health, a sense of humor, keen observation, and personal integrity. Professional training should not be started until successful completion of an apprenticeship. Instruction should be available in both theoretical and practical subject areas with courses in: anatomy, nursing care, psychology, psychiatry, law, business management, music, recreation, and basic therapeutic techniques. This training should be accompanied by practical field experience. The staff of the sheltered workshop should be prepared for and trained to meet their responsibility for the MR's medical and mental health, special education, psychotherapy, and social and legal rights as well as providing economic management of the workshop and cooperating with other professional workers. (No refs.) - B. Bradley.

972 King, B. W. Training for sheltered work. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 23-26.

The objectives of training for the MR in sheltered employment in England are described in terms of transitional stages

needed to insure optimal development. The aim of training for sheltered work should be to achieve a smooth progression from occupational training to sheltered work and finally to employment within the community. Adequate facilities should be provided to insure a smooth transition. The Adult Training Center at Plymouth, England, has 6 stages in its transition program: basic self-care, manners and appearance, basic knowledge of 20 percent of tasks in the workshop with 40 percent supervision, machine work or a higher percentage of knowledge of work tasks with less supervision, finance, and increased knowledge of job and community skills such as purchasing items in stores. At the end of these stages the MR should have a good working knowledge of all the tasks involved in the workshop. A variety of tasks is essential. All training programs should have simple systems, plans, and schedules; provide information on everyday living; be free from stress and strain; offer payment for work performed; and have the cooperation of parents and other agencies. (No refs.) - B. Bradley.

973 Masovic, S. Legal aspects of sheltered employment for mentally retarded. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 27-31.

Six legal considerations involved in providing sheltered employment for the moderately and severely retarded are discussed in terms of legislative programs. The first consideration is to increase the State's responsibility in developing sheltered employment facilities for the SMR through modern legislation on all levels ranging from local to federal concerns. The second consideration is that the State be responsible for complete legislation in the field of sheltered workshops. The third legal consideration is the right of the MR to sheltered training and employment. The future of the MR should not be dependent on the good will of a local authority or a charitable organization but should be the obligation of the State. The fourth consideration is that disabled employees receive full payment of wages and all social security and unemployment benefits. Every State should organize by law the place and role of sheltered workshops. The fifth consideration is to insure full employment of the SMR. Many countries today cannot insure this right even for moderately handicapped persons. Sheltered workshop ought not to include mildly retarded persons who need to be placed in open employment but should be restricted to the moderately or severely retarded. The State should enact standards such as minimal hours of work, wages, and tax reductions. The sixth legal factor involves the legal rights of the mentally handicapped. Adequate protection and necessary civil rights must be carefully considered. (No refs.) - B. Bradley.

974 Wintsch, H. Organization, financing and wages. In: International League of Societies for the Mentally Handicapped. Symposium on Sheltered Employment: Frankfurt, 10-12 February 1966. Heering, Anton H., chairman. Bruxelles, Belgium, 1967, p. 33-36.

The problems of organizing and financing sheltered workshops are discussed on the basis of 6 major principles. The organization of a sheltered workshop should be industrial rather than custodial. It should provide a bridge between the institution and the community. Initially, the work operations should be simple, but the retardate must be integrated into a sphere of increasing tasks and a mixed community. The sheltered workshop must be as similar as possible to a normal workshop or factory. The primary problems of the MR are not related to work skills but involve social limitations. The working environment is of special concern and private employment should be a goal for qualified workers. The staff of the sheltered workshop requires contact with employer associations and trade unions. The MR can work only under certain conditions, and some adaptations of tools and machines are required. Job skills should be analyzed so that the new worker has knowledge of results. The worker ought to see the end product even though he is concerned only with a few operations. The manager should be a technical man with a practical orientation. The MR worker should realize that work involves responsibility and is not a form of play. Sheltered employment should offer the retardate increased social responsibility and richer goals in life. This may produce questions concerning legal rights such as permission to marry or vote. He will be learning to cope with familial and social problems. Community teamwork is essential for organization and financing of sheltered workshops. (No refs.) - B. Bradley

975 Muehlberger, Carl E. Civil Service employment opportunities for the educable mentally retarded in New York state. Digest of the Mentally Retarded, 3(3):174-177, 179, 1967.

Civil Service is 1 area of unskilled and semi-skilled employment with appropriate opportunities for the well-trained retarded person. Limited opportunity exists in the non-competitive classification of Civil Service positions for the very able educable retarded child exhibiting: (1) a high degree of emotional stability and social maturity; (2) high manual dexterity; (3) above the fourth grade level achievement; (4) a thorough understanding of occupational goals, values, information, and attitudes; and (5) knowledge or experience applicable to the position. Most opportunities exist in the areas of messenger, cleaner, detention attendant, food service helper, and similar jobs. Hiring procedures for Civil Service positions are described. (No refs.) - J. Snodgrass.

No address

976 Stahlecker, Lotar V., ed. Occupational Information for the Mentally Retarded. Springfield, Illinois, Charles C. Thomas, 1967, 816 p. $24.00.

Although the attainment of vocational proficiency for MRs should be a major educational goal, the minimal number of adequate occupational education (OE) programs now in operation can only provide training for a relatively small number of Ss. Present expansion of OE is due to: follow-up studies which have assessed the strengths and weaknesses of present programs, demands for greater proficiency by MRs due to technological and scientific advances, and the discovery of the need for OE in special education. This collection of 78 selected journal articles concerning OE for MRs covers the total process of education and training and includes data on guidance, occupational training, work experience, sheltered workshops, community placement, and followup studies. The readings will be of interest to administrators, psychologists, counselors, educators, social workers, employers, and researchers. (488 refs.) - J. K. Wyatt.

CONTENTS: Guidance; Occupational Training; Work Experience; Sheltered Workshop; Community Placement; Follow-Up Studies.

977 U. S. Health, Education, and Welfare Department. Abstracts of mental retardation research projects funded by the Vocational Rehabilitation Administration. Programs for the Handicapped. Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, August 14, 1967, 36 p.

Areas covered by the abstracts of the 58 research projects dealing with the vocational rehabilitation of MR adolescents and adults include: adjustment, counseling, rehabilitation training, recreation, employment, community planning, education, learning, and workshops. (58 refs.) - C. A. Pepper.

RECREATION

978 McIntosh, Dean K. Cooperative and organized play: A research design. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 19 p. Mimeographed.

A research design is established to support the theories of the reported studies that EMRs, regardless of placement, need to develop better social skills. The model is designed to demonstrate that EMRs receiving training in organized play will improve their social interaction with their peers. Experimental and control groups will include organized and unstructured play activity. Seventy-two first and second grade EMRs will be placed in experimental and control groups; 6 from each group will be placed with normals. The total population in this city-wide experiment will be matched in socio-economic background, CA, MA, and sex. Screening will be done with the Binet; psychological, achievement, and social tests will be given as well as tests for motor coordination. Medical and parental reports will be included. The parents will receive the Vineland Scale test. The teacher will be designated to work with both groups. Data will be evaluated by factor analysis, mean standard deviations, and

t-ratios. From this data, implications for further research will be considered. Variables to be analyzed will include: sex, experimental versus controls, first grade versus second grade, schools, socio-economic levels, matched samples, and achievement test results. (15-item bibliog.) - G. Trakas.

University of Hawaii
1776 University Avenue
Honolulu, Hawaii 96822

979 Kelley, Francis, Mello, James, & D'Aluisio, Nick. Physical education and recreation activities. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 46-54.

Of the 3,000 recreation departments surveyed nationally, only 363 are providing programs for the MR in physical education and recreational activities. Connecticut maintains 30 day and residential camps in which the programs are developed on a competitive basis. This helps to prepare EMRs for community living. This balanced program also attempts to have MRs develop the basic skills through sports, hobbies, and physical fitness activities that can be applied to their interactions with society. The belief of this program is that by allowing the MR to become physically alert, he will also become mentally alert. A demonstration with children ranging from 8-15 years and having intelligence quotients between 33 and 66 was given to activate the concepts and skills and to show that the materials used need not be elaborate nor expensive. Better coordination is taught with rope, tires, bottles, beanbags, and cardboard boxes. Dancing, broad-jumping, and tight-rope walking on the floor were also demonstrated. (4 refs.) - G. Trakas.

980 Grove, Frances A., & Keeran, Charles V. Teaching the severely retarded to use playground equipment. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 14 p. Mimeographed.

Few profoundly or severely retarded residents of institutions know how to use playground equipment. Pacific State Hospital began a project aimed at encouraging the residents to use playground equipment and teaching them to play effectively. Merry-go-rounds, swings, climbers, tunnels, and slides were used to provide the Ss with a variety of activities and to foster development of a range of skills. Training classes were established to help ward personnel meet the problems involved in teaching the Ss to use the playground equipment. Principles emphasized in these classes included: (1) people live up to their expected social roles, (2) motivation and learning will take place quicker through personal contact and demonstration, and (3) tasks should be taught in small step-by-step increments. The program proved to be successful in that the residents became more alert to their environment and transferred the skills learned on the playground to other areas of the institution. (No refs.) - J. Melton.

Pacific State Hospital
Pomona, California

981 Happ, F. William. Physical activities for the trainable mentally retarded. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 4 p. Mimeographed.

Physical activities are essential in improving the perceptual, social, and physical skills of MRs. Activities should be designed to fit the child's need, and directions and movements must be geared to the appropriate level. Developmental theories suggest the importance of motor activity to the growth of perceptual skill. Causal relationships can also be taught. Games must be simplified, well-structured, and varied. Important products of recreation for the TMR are pleasure, success experiences, and self-assurance. (No refs.) - R. D. Perkins.

Laradon Hall School for
Exceptional Children
Denver, Colorado 80216

982 Grove, Frances. Answers to some questions about camping for retarded. ICRH Newsletter, 3(2):1, 3, 1967.

Both day and overnight camping are possible and profitable for moderately and severely retarded children and adults. Even wheelchair MRs went to day camp with normal children and were included in the activities with little difficulty. Because of the difference

in development in children of the same CA, the MRs did not form friendships with the other campers, but they were usually treated with consideration and understanding. Personnel of the Pacific State Hospital, Pomona, California, have found that their patients in camp showed an adaptability and performance beyond what would generally be expected and that the rewards and satisfaction were well worth the effort. (No refs.) - E. F. MacGregor.

P. O. Box 100
Pomona, California 91766

983 Gleason, Walter. Camping: A hospital's approach. ICRH Newsletter, 3(2):1, 4, 1967.

Several groups drawn from Manteno State Hospital (Illinois) spent a week at a primitive campsite where patients and staff slept in tents and the cooking was done at the campsite. Except for a certain amount of work, the patients were allowed to choose their activities, and regulation was avoided as much as possible. Changes in the patients from a chronic-regressed-patient project were evaluated from interviews with campers and staff (half of whom went to camp with the patients). Although they worked harder and had more responsibility, most campers enjoyed the experience. The staff felt that at least some of the patients improved. (No refs.) - E. F. MacGregor.

No address

984 Lombardi, Thomas P. Therapeutic value of a residential camp program for the mentally retarded. Recreation for the Ill and Handicapped, 11(2):6-8, 1967.

A camp program for non-institutionalized MRs (minimum age, 8 years) proved to be of decided benefit to most of the campers. They participated in arts and crafts activities, instructional and recreational swimming, evening programs, and performed such responsibilities as keeping their cabins clean. In many cases the influence of the group caused campers to attempt (and often to succeed in) tasks above their usual level of performance. The Camper's Council (elected by their fellow campers) met with the Camp Director and contributed ideas about the camp program. Evaluations made at the end of camp were helpful to counselors who would be working with the same campers the following year. (4 refs.) - E. F. MacGregor.

Arizona Children's Colony
P. O. Box 1467
Coolidge, Arizona

985 Baker, Sheila A. A day camp in Pennsylvania. ICRH Newsletter, 3(2): 2, 1967. (Letter)

A very successful day camp for TMRs aged 7 to 22 years maintained a staff-camper ratio of 1 to 2 and offered a wide variety of recreational and craft activities. The Southern Illinois University physical fitness manual was used, and progress records were very encouraging. (No refs.) - E. F. MacGregor.

Luzerne County Association
for Retarded Children, Inc.
40 West Northampton Street
Wilkes-Barre, Pennsylvania 18701

INSTITUTIONAL PROGRAMS AND SERVICES

PHILOSOPHY, ADMINISTRATION, AND SUPERVISION

986 Thorne, Gareth D. Implications for institutional administration. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 6 p., Typed.

The utilization of data analysis to aid administrators of institutions for the retarded helps in giving an overall picture of the problem, in predicting budget and staffing needs, in presenting needs to the legislature, in projecting a clearer image to the public, in communicating with university-based research units, in providing a more informed approach for the staff, and in exchanging information between institutions for their mutual profit. (No refs.) - E. F. MacGregor.

Arizona Children's Colony
P. O. Box 1467
Coolidge, Arizona 85228

987 New Jersey. Institutions and Agencies Department, Mental Retardation Division. A Look Ahead: The Future Type and Function of Public Institutions for the Mentally Retarded in the State of New Jersey. Marlowe, Ronald. Trenton, New Jersey, 1966, 58 p., Mimeographed. (Price unknown)

New Jersey's institutional facilities for the care and training of MR individuals are reviewed and evaluated. A committee formed to compare the merits of the state's present "specialized" system of public institutions with those of a regional system considered 4 major factors: type of residential caseload, physical limits of present institutions, various types of residential facilities, and problems of classification. The committee made preliminary proposals rather than final recommendations. Noting a trend toward more admissions of severely and profoundly MR children and fewer mildly MR persons, it predicted that expansion of community programs will not meet the needs of this population and that New Jersey will need to acquire from 3 - 7 major institutions in the next 14 years. The committee recommended close placement whenever it is both beneficial to the resident and desirable to the family but decided against a policy of regional institutions because land acquisition costs were prohibitive in many areas. It also favored multi-purpose, co-educational institutions over the state's present system of special-purpose facilities. The group felt that the emotionally disturbed MR can best be served in small, specially staffed units within each institution. Appendices include descriptions of the present system in New Jersey as well as statistical data. (21-item bibliog.) - B. Bradley.

ADMISSION, ADJUSTMENT, AND DISCHARGE

988 Eagle, Edward. Prognosis and outcome of community placement of institutionalized retardates. American Journal of Mental Deficiency, 72(2):232-243, 1967.

Calculations of published data on 12,471 releases from state institutions for the MR show that 27.5 percent had an unfavorable prognosis. Thirty-six follow-up studies published between 1941 and 1965 yielded a total of 7,436 releases (mean release age 22.2 years) with an overall failure rate of 39.6 percent. Because of the foregoing and the wide disagreement as to the prognostic value of many release characteristics for success or failure in community placement of the MR, intensified research and critical evaluation of placement procedures very definitely are indicated. (70 refs.) - (Source: AJMD).

Illinois Association for the
Mentally Retarded
343 S. Dearborn Street
Chicago, Illinois 60604

989 Eyman, Richard K., Tarjan, George, & McGunigle, Diane. The Markov chain as a method of evaluating schools for the mentally retarded. American Journal of Mental Deficiency, 72(3):435-444, 1967.

An example of program evaluation using a version of a Markov chain based on a 4-year follow-up of an admission cohort to an institution for the MR is presented. In this study, a group of school patients was compared with a group of non-school patients in terms of probabilities of transition from one status to another along a "desirable-undesirable" continuum. It was apparent from the results that the school patients have a better prognosis than non-school patients in terms of final outcomes. The probability of a change of status at a particular time after admission was found to relate to age and school enrollment. Since hospitals and situations vary greatly, it is best to view the results of this study as an example of another alternative method available to those interested in program evaluation. (10 refs.) - (Source: AJMD).

Pacific State Hospital
P. O. Box 100
Pomona, California

SERVICES, PROGRAMS, AND FACILITIES

990 Zeigler, Lili. An audiometric survey at a state institution: Methods, materials, results, and implications. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 16 p. Mimeographed.

A survey of the incidence of hearing loss at the North Jersey Training School is described in terms of methods, materials, and results. Ss consisted of 672 females (CA, 6 yrs 1 mo to 78 yrs 1 mo) ranging in ability from profound to borderline MR. They were all conditioned to some form of cooperative or play-threshold audiometry.

In all cases the frequencies .25, .5, 1, 2, and 4 kilohertz were tested with all thresholds cited according to the American Standards Association 1951 standard reference level for comparison purposes. Procedure included hand raising, a variety of "put into's" or button pushing, conditioned-orientation reflex testing using light flashes, and conditioning with food rewards. The use of psychogalvenometer and Toby Theatre was attempted but did not prove very beneficial. An assistant was available, and Ss seemed to respond positively to the presence of an additional person. All Ss had ear cleaning before testing. The importance of stimulus-response timing was noted, along with the difficulty involved in finding meaningful sounds for residents who have been institutionalized for long periods. While the incidence of hearing loss at the training school ranged from 11.8 to 27.8 percent, depending on the criteria employed, the incidence figures for mongoloids was higher according to all criteria. Impacted cerumen was identified as the most common cause of hearing loss at the school. Older Ss showed a higher degree of sensorineural impairment, while the younger Ss had more conduction loss. Indications are that hearing loss is inversely related to intelligence and directly related to age. A reliability study of 76 Ss showed that there were repeatable audiometric thresholds. (12 refs.) - B. Bradley.

North Jersey Training School
P. O. Box 215
Totowa, New Jersey

991 Smith, Charles E., Williams, J. Earl, & Lloyd, John L. The dental health status of the mentally retarded in an institutional population. Mind Over Matter, 12 (2):14-26, 1967.

A dental survey of 400 residents of an institution for MR revealed a low prevalence of decay and a high prevalence of periodontal disease. The sample was selected at random from a population of 1,400. Indices used were: Russell's Periodontal Index (PI), Green's Oral Hygiene Index Simplified, Draker's Handicapping Labio-Lingual Deviations, deciduous decayed and filled teeth, and permanent decayed, missing and filled teeth. A subjective hyperplastic gingivitis evaluation also was used. Sixteen percent had a malocclusion; this was thought to be an underestimation of the actual prevalence. Forty-eight percent of 61 Ss taking dilantin sodium had no manifestations of gingival hyperplasia. Of 8 residents with severe hyperplastic gingivitis, 7 were taking dilantin, but only 38 percent of those with mild hyperplastic gingivitis were taking this medication. In general, the methods of measuring dental disease used in this study were applicable to MRs. The PI was the most difficult to use. An objective index for hyperplastic gingivitis is needed, and further study of dental science in MR should be done. The major dental problems in this population appear to be periodontal disease and the need for improved oral hygiene. (8 refs.) - R. Froelich.

Fort Wayne State School
for the Mentally Retarded
Fort Wayne, Indiana

992 Leck, Ian, Gordon, W. L., & McKeown, Thomas. Medical and social needs of patients in hospitals for the mentally subnormal. British Journal of Preventive and Social Medicine, 21(3):115-121, 1967.

The medical, nursing, and social needs of 1,652 mentally subnormal hospital patients in Birmingham, England are reported. The patients were classified according to mental status, age, and duration of stay. Medical treatment needs were separated into neuropsychiatric conditions and non-psychiatric medical needs. Nursing requirements were divided into skilled nursing, basic nursing, personal supervision, mental nursing, and counseling. Need for sheltered environment, training, and occupation was also assessed. Results indicate that over half needed no medical treatment. Only 7 patients required skilled nursing. Approximately 40 percent needed mental nursing and/or basic nursing, which primarily involves toilet care and feeding. Thirteen percent required only basic nursing. Half of the patients required no nursing service and needed only a sheltered environment with counseling and opportunities for occupational training. Nineteen percent were considered suitable for work in hospital service departments or outside the hospital. (7 refs.) - W. Asher.

University of Birmingham
Birmingham, England

993 Ucer, Erol. The role of family therapy in mental retardation. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 17 p. Mimeographed.

Clinical indications or contraindications are examined regarding the usefulness of family

therapy for the family of a retardate and the evaluation and maturation of parents undergoing therapy at Lapeer State Home and Training School, Lapeer, Michigan. The presence of an MR child in many families in our culture represents a real tragedy that may have serious implications for the entire family. In addition to the many defensive mental mechanisms such parents use, chronic sorrow is often present in open or concealed form. Overprotection and infantilization may occur followed by rejection and scapegoating of the MR child. To a certain extent, socioeconomic factors influence the parents' response to the retardate. Thus, well-educated parents from high socioeconomic classes are much more interested and reliable in getting involved in family therapy. Because of the variations in MR children and their families and the different types of problems that occur, a great deal of flexibility in the therapist is essential. The general goals of alleviating emotional distress, promoting understanding, and changing behavior frequently are achieved in whole or in part by family therapy. (2 refs.) - R. Froelich.

Lapeer State Home and
Training School
Lapeer, Michigan 48446

994 Salazar, Harriett, Subcommittee of Institutional Parents for Information (SCIPI). Mental Retardation In Illinois, 1(3):32, 1967.

The Residential Committee of the Illinois Association for the MR has established a subcommittee to help families faced with placing their retarded child in residential care. The subcommittee provides information and personal parent-to-parent contact with someone who has experienced the process of residential placement. One hundred families have been served since the inception of SCIPI in August, 1966. (No refs.) - J. Snodgrass.

No address

995 Nursing home visitation program. Newsletter of the Warren G. Murray Children's Center, Centralia, Illinois, 3(39):3, 1967.

The Nursing Home Visitation Program is based on the principle that much growth and satisfaction come from doing things for others. It gives TMRs an opportunity to share their lives with elderly people and to express love and concern. "After being screened for this program, the residents are scheduled for several group counseling sessions in which the chaplain outlines and discusses with the children what should be done in the ensuing visits." While visiting with the elderly, the children share their recent experiences, sing, or present something they have made. Periodically the chaplain meets with the children in small groups to discuss their feelings about their elderly friends and their visits with them. The major benefits of this program are: (1) the residents feel they are useful human beings, (2) under the chaplain's guidance, they practice making new relationships, (3) the weekly community contact is an opportunity they can look forward to and plan, and (4) good public relations are fostered. (No refs.) - C. M. N. Mehrotra

996 Schultz, H. F., Baruffi, E. M., Cesta, R. M., & Dotts, W. F. Yearly report: Maximal stimulation grant #5 R20 MH02173. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency. Denver, Colorado, May 15-20, 1967, 7 p., Mimeographed.

A maximal stimulation program including physical and speech therapy, self-help, feeding, self-care, and recreation activities improved development in 9 female institutionalized PMRs (mean IQ, 12.3, mean CA, 10.8 years). All Ss were judged to have potential for development, although most were non-ambulatory and brain damaged. The operant conditioning program, conducted 6 hours daily, used candy, praise, and pats as reward for successful behavior. The "Residential Development Check List" was used to measure progress. Improvement in dressing ranked highest followed by motor development, language, toilet training, bathing, eating, social maturity, and grooming respectively. Gains ranged between 3.5 and 21, with an average of 8.6 (by 7 MRs). (No refs.)- R. D. Perkins.

Vineland State School
Vineland, New Jersey

997 Teen-age exchange dinner program between Daisy and Elm Cottages in cooperation with the activity therapy department. Newsletter of the Warren G. Murray Childrens' Center, Centralia, Illinois, 3(39): 4, 1967.

A teen-age exchange dinner program induced in MR adolescent boys and girls a desire to

learn proper social and procedural etiquette. The participants were given planning and leadership responsibilities usually considered to be beyond their capabilities. The program consisted of: (1) helping the guests with the coats and escorting them to dinner, (2) assisting the girls with their chairs at meal time; (3) choosing the proper table settings; (4) saying Grace before the meal (5) helping to clear the table and return the dinnerware to the kitchen; (6) participating in post dinner activities such as dancing, croquet, and volleyball; and (7) escorting the girls back to their cottage. Only a few minor problems of a social nature occurred. Improvement in the participants' table manners and social skills "has been astonishing in that their learning has not been confined to the dinner exchange program, but has been observed in the daily meals in the dining room and in other social settings." (No refs.) - C. M. N. Mehrotra.

998 Gilreath, Marilyn. Teens in the pediatric ward. Staff, 4(6):5, 1967.

Teenage Red Cross volunteers dress, feed, and play with the MR babies on the pediatric ward at Pacific State Hospital. This well-organized program has proved mutually beneficial. (No refs.) - J. Snodgrass

Pacific State Hospital
Pomona, California 91766

999 C. S. V's in mental subnormality hospitals. Teaching and Training, 5(3):105-107, 1967.

Working to help compensate for staff shortages, teen-age volunteers in hospitals for the mentally subnormal benefit themselves as well as the patients. Their views are given in letters from the volunteers themselves. (No refs.) - E. F. MacGregor.

PERSONNEL AND STAFF DEVELOPMENT

1000 Smith, Carl B. Description and results of a long-term psychiatric aide selection project. Mind Over Matter, 12(2): 27-39, 1967.

Evaluation of aide selection (over a period of years) at a large southern state institution showed that tested abilities could be changed by selection principles and that psychological interviewing can screen out the more abnormal personalities. The selection of psychiatric aides is important because the close, prolonged contact they have with patients has a great influence on the behavior and treatment of the patients. A set of standardized tests was developed in an attempt to attain certain goals of selection. Essentially these goals included trainability, judgment, abilities, attitudes, personality, and absence of disability. Three standardized tests used were the Otis Employment Test, the Wechsler Adult Intelligence Scale Vocabulary sub-test, and the Gray Oral Reading test. Unstandardized tests and interviews were also used. Test data on 274 aides were studied. A significant cultural characteristic was a separation from the "cotton culture" of the south. Differences between 1956 and 1964 showed an increase in test scores for all standardized tests, which demonstrated the effects of systematic selection. The inter-test correlation was least for the Otis Employment Test. No clear indications for the use of the Minnesota Multiphasic Personality Inventory was found. (5 refs.) - R. Froelich.

Western State Psychiatric
Hospital
Bolivar, Tennessee

1001 Schroeder, David M. Multi-faceted role of cottage staff in a total habilitation program. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 6 p. Mimeographed.

The function of habilitation is to provide learning adjusted to the individual's needs and abilities and to the requirements of the community. The psychologist may have many roles, including the training of personnel to

use and evaluate operant conditioning principles. Psychologists can also provide information on a S's ability, emphasizing relative strengths and weaknesses (including adaptive behavior) which will aid in defining and planning habilitation goals. Coping with undesirable resident MR behavior can be accomplished by using an extinction procedure and by rewarding positive behavior. Teamwork is important in dealing with MR habilitation problems. (No refs.) - R. D. Perkins.

The Hissom Memorial Center
Box 725
Sand Springs, Oklahoma 74063

COMMUNITY PROGRAMS AND SERVICES

1002 U. S. Public Health Service. Comprehensive Care Services in Your Community, (Division of Medical Care Administration; PHS Publication No. 1353). Washington, D. C. Superintendent of Documents, U. S. Government Printing Office, 1966, 54 p. $0.25.

Community services designed to provide comprehensive care can be used to allow chronically ill or disabled persons to function within the limits of their specific problems and to help them preserve, use, and strengthen their adaptive abilities. Early diagnosis and properly prescribed care may arrest or control incurable chronic illnesses. Comprehensive services can be used to change the effects of disease by providing primary or secondary prevention and by working for the alleviation of dependency and/or disability. Patient-centered planning will provide referral, evaluation, and re-evaluation services. Inpatient, outpatient, and home-care health services should be available. Plans for care services require coordination, comprehensiveness, and continuity. Communities planning to provide comprehensive care services should: (1) assess their needs and resources; (2) involve local professional persons, particularly medical doctors, in the planning; (3) develop a tentative plan of action which includes short and long-term goals and priorities; and (4) involve local citizens in putting the plan into action. The Community Health Services and Facilities Act provides "seed money" for experimentation with new care services, for the expansion of existing resources, and for the reorganization that will help services and facilities become more effectively related to the needs of the chronically ill. (No refs.) - J. K. Wyatt.

CONTENTS: The Challenge; Illness and the Older Person; Can Illness and Disability Be Prevented?; What Do We Mean By Care?; Let's Look at Your Community; Information, Referral, and Counselling Services; Care in the Patient's Home; Toward Comprehensive Home Care; Outpatient Care Services; Coordinated Community Care; Getting Started.

1003 Walker, Don. Comprehensive care for 170,000 in nine counties: Western Kentucky MH-MR board steps out boldly. Challenge, 2(3):11, 1967.

In July, 1967, a 9-county area of western Kentucky established a board to provide comprehensive care and services in mental health and MR. The services include: (1) inpatient hospitalization care which takes place through the cooperation of hospitals in the local communities, (2) out-patient care consisting of on-duty psychologists and social workers at facilities located in 5 cities of the area, (3) emergency service, (4) partial hospitalization or day care with stress on recreational and group therapy within the local hospitals, and (5) consultation and educational services. A sliding-scale fee is charged based on the individual's economic ability and size of family. (No refs.) - J. Melton.

Paducah Sun-Democrat
Paducah, Kentucky

1004 Fraenkel, William A. Facing the total problem of mental retardation. Digest of the Mentally Retarded, 3(3):164-166, 171, 1967.

There are many programs and services currently available to help MR persons remain in the community as responsible, participating citizens. Habilitation of the retarded, including those with secondary disabilities, can prevent many from becoming community handicaps. Eligibility for services should not be determined solely on the basis of IQ. The potential ability, interest, aptitude, training, and skill of the individual should also be considered. (No refs.) - J. Snodgrass.

No address

1005 Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, 121 p. Price unknown.

To improve the teaching skills of professionals and paraprofessionals, an in-service training program was conducted for the staff of the day-care programs for the MR in Connecticut. Social, emotional, physical, psychological, academic, intellectual, vocational, medical, and community aspects were discussed. New methods and materials were demonstrated and visual aids and films helped to reinforce the presentations, which often included demonstrations with MR children. The trainees were asked to complete a questionnaire to evaluate the merits of the conference, and the faculty was asked to appraise each presentation. The overall consensus favored the proceedings. Suggestions from the trainees included: field experience and advanced degrees should be required of the faculty, and better communication among the allied fields is needed. (No refs.) - G. Trakas

1006 LaCrosse, Edward L. Day care for the mentally retarded. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 8-13.

In the past, day care centers have been inclined toward serving the family rather than the child; however, day care services for the MR are child-centered and emphasize treatment and development. Day care center goals should consider individual differences in the optimum development of each client. It should not be inferred that all MRs develop in the same way and should be treated without consideration of differences. The SMR should not be allowed to remain passive but should be encouraged to participate in activities that will aid them in all areas of their growth. To achieve social, emotional, and physical growth, the activities must be organized, meaningful, and goal oriented. (5 refs.) - G. Trakas.

1007 Switzer, Ann. The state association for retarded children. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 103-104.

Approximately 3,000 people comprise the Connecticut Association for Retarded Children (CARC). The parents and friends in this group work with agencies to secure the needed services for the MR. CARC's primary interest is in dealing with the parents of all MRs and in aiding research directed toward the prevention of MR. (No refs.) - G. Trakas.

1008 Stabler, Elizabeth M. The local association for retarded children. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 105-107.

A comparison is made between the methods of 10 years ago and the present procedures of the local association for MRs in dealing with retarded children and their families. Community services keep many MRs at home unless institutionalization is found to be best for the child and the family. Such services include the vocational rehabilitation counselor, the State Employment Service, community employers, and the local association of the MR. (No refs.) - G. Trakas.

1009 Colombatto, Joseph. The regional center program. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 111-114.

Programming for the MR at the regional center involves working with the entire family. The

center is concerned with programing for preschool children, for those excluded from public schools, and for adults. MRs in recreational programs are encouraged to enter community-wide activities to avoid being isolated at the center. In this regard, the regional center's residential care program includes the foster home program as a part of the plan. Services can be short term or long term in duration; a child can be cared for at the center for an hour or a week-end. Universities, boards of education, and parent and civic groups cooperate in the program. (No refs.) - G. Trakas.

1010 Long, Earl L. Conclusions and recommendations. In: Greater Hartford Association for Retarded Children, & Connecticut State Health Department. Improving Teaching Skills for Working with the Mentally Retarded. (Proceedings of an in-service training program for para-professional staff in day care programs for the retarded in the state of Connecticut). Hartford, Connecticut, 1967, p. 115-119.

At the close of the proceedings of the in-service training program for para-professionals in day care programs for MRs, conclusions and recommendations were secured through a questionnaire to trainees and faculty evaluation of each meeting. Salient features revealed that the majority felt the institute to be of great value in that the theoretical concepts were discussed, demonstrated, and brought within the realistic realm of the day care center milieu. Group preference favored the faculty with the Master's degree and about 10 years work experience. In ranked importance of service to the center were teachers, psychologists, social workers, and physicians. However, ranking of community importance showed the order to be the psychiatrist physician, psychologist, educator, and social worker. The implication of the results shows a need for closer rapport among the professions in day care programing and demonstrations as a preference over the lecture and discussion. The recommendation for more and better methods, techniques, and materials in working with MRs, SMRs, emotionally, and socially disturbed was made. The faculty agreed that the trainees were highly motivated but felt perhaps the volume of facts and information given in a 2-hour period could not be thoroughly digested. A review of the format, content, scheduling, and omissions was suggested. All the participants agreed the institute was beneficial. (No refs.) - G. Trakas.

1011 Schneider, Sheldon R. Foster Boarding Care for Mentally Retarded Children. Minneapolis, Minnesota, Minneapolis Association for Retarded Children, 1966, 29 p., $1.00.

A need to develop standards and licensing requirements specifically pertinent to foster boarding homes (FBH) for retarded children is revealed by a survey conducted in Hennepin County, Minnesota, of 36 FBH serving 175 MRs. The data were gathered through interviewing the foster mother in each home. Major findings include: (1) 66 percent of these children were 5 years of age and over; (2) foster mothers classified 43 percent of the children as EMR and 30 percent as SMR; (3) the average length of time these children had been in the present foster home was approximately 3 years; (4) 53 percent of the foster mothers said they preferred children under 5 years of age, while 28 percent preferred to take children between 5 and 10 years of age; (5) 44 percent of the respondents expressed no preference concerning the children's intelligence; (6) the fees for child-care ranged from under $80 to over $150 per month; and (7) very few of these children were receiving regular visits from parents or relatives. The development of an FBH program for retarded children is being hindered by inadequate and irrelevant standards, shortage of FBH for retarded children, and unavailability of other facilities at the community and state levels. (No refs.) - C. M. N. Mehotra.

1012 Zucman, Elisabeth. L'assistance médico-sociale à l'enfant déficient mental dans sa famille. (Medical and social assistance to the mentally retarded in the family). Nos Enfants Inadaptes, 24(4):18-27, 1967.

The medical-social team works with each child according to his particular needs. For those families with an MR child, 3 services are available: centers where the mother brings her child once or twice a week to learn aspects of caring for him, day-care centers for the child of the working mother, and at-home assistance provided by physical therapists if necessary or by a person to care for the child for a few hours. (No refs.) - C. A. Pepper.

No address

PROTECTIVE PROGRAMS AND SERVICES

1013 Jouseau, H. La protection à long terme des inadaptes. (Long term protection for the handicapped). Nos Enfants Inadaptes, quarterly review (special issue): 20, 1967.

The retarded need special protection during their entire lives, but with parents deceased, they need new legislation to insure their continued support. Before the law, handicapped persons are considered normal for voting, crimes, marriage, and bearing children. However, the handicapped are without the security offered to normal-aged citizens. Now in preparation are ordinances for guardianship and social security. The lodgings for these adults should permit the residents to live as individuals with the benefit of community services available. (No refs.) - D. Bammel.

No address

MENTAL RETARDATION PLANNING AND LEGISLATION

1014 Mann, James W., & Champion, William M. U. S. state laws regarding the testing of infants for inborn errors of metabolism. Mind Over Matter, 12(2):4-13, 1967.

A survey of 38 states with laws concerned with the diagnosis and screening of newborn infants for inborn errors of metabolism showed considerable variation in extent and areas of coverage. Since the states enacted the laws during the last 3 years, there has been limited opportunity to become familiar with them. The state health department has the administrative responsiblity in every state. Phenylketonuria (PKU) screening alone is specified in 22 states, with a specific test mentioned in the law of only 1 state. Exemptions on the basis of religious grounds are made in 24 states. A time limit is indicated in Oregon (before the age of 2 weeks), in Indiana (earliest feasible time), and in Iowa (reasonable period following birth). A penalty for failure to comply is indicated in 6 states. Treatment is specifically referred to in 5 states, and testing provisions for infants not born in a hospital or delivered by a physician are made in 20 states. Of the 12 states without such laws, 4 will probably have laws soon, 5 already have statewide testing, and 4 feel that a law is unnecessary. Recommendations regarding metabolic legislation include: a non-specificity about PKU and particular tests, authority given to a state agency, mandatory rather than permissive rules, and recording on the birth certificate. An analysis of metabolic testing legislation is presented in tabular form. (No refs.) - R. Froelich.

University of Mississippi
University, Mississippi

1015 Minnesota. Public Welfare Department. Mental Retardation. In: Public Welfare Manual. St. Paul, Minnesota, 1967, (Chapter 7, Section 3), 60 p. Mimeographed.

Based on current concepts in MR and integrated with the general program of the Minnesota Department of Public Welfare, this manual is directed toward legal as well as social problems. Two definitions are given - one for social planning and one for legal criteria for commitment. Manual materials are designated as possible sources of information for families in need of treatment services. Employment factors, especially on-the-job injuries to handicapped employees, are specified. The legal bases for guardianship are delineated along with medical, dental, educational, and training responsibilities. Specific requirements for marriage of MR wards and procedures for marriage approval are listed. Special attention is directed toward the discharge of guardianship responsibilities, the policy of disbursements, and the regulations regarding death and autopsies. The role and procedures regarding agencies and out-of-state contacts are also defined. (No refs.) - B. Bradley.

1016 Connecticut Health Department. Who We Are; Where We Are; Where We Are Going. Hartford, Connecticut, Mental Retardation Office, 1967, 20 p.

State and regional services to the MR in Connecticut are outlined in a framework of history, philosophy, goals, facilities, existing services, and proposed services. The state is organized into 12 regions to

minimize institutional placement so that many MRs may remain in their homes and participate in the life of the community while receiving needed specialized services. (4 refs.) - J. Snodgrass.

PARENTS AND FAMILY

1017 Cowie, Valerie. Parental awareness of retardation. Developmental Medicine and Child Neurology, 9(4):494-496, 1967. (Annotation)

Parental acceptance of their child's MR is important for many reasons some of which include a good relationship with teachers and avoidance of frustration and disappointment. Too few doctors have the knowledge to be skillful counselors in this area. Even with excellent counseling, dissociation from facts may continue. Parents should be made aware of the problem prior to the child's reaching school age because the child's mental status may be perceived as normal. Research has shown that, although parents tend to expect their MR child to complete fewer years of formal schooling, they tend to devalue the child and be more aware of him when he is placed in special classes. This lack of "meaningful awareness" may be a reflection of their rejection of school as a middle class approach to respectability. This results in deprivation of the MR child which can have life-long effects. (5 refs.) - R. Froelich.

M. R. C. Psychiatric Genetics
Research Unit
Maudesley Hospital
Denmark Hill, London, S. E. 5
England

1018 Cummings, S. Thomas, Bayley, Helen C., & Rie, Herbert E. Effects of the child's deficiency on the mother: A study of mothers of mentally retarded, chronically ill and neurotic children. American Journal of Orthopsychiatry, 36(4):595-608, 1966.

To determine what effects her child's deficiencies have on a mother, selected personality features were compared for 240 mothers - 60 mothers each of MR, chronically ill, neurotic, and healthy children. Demographic data common to all Ss included: intact family status, natural mother of child, mother of more than one living child, the affected child between 4-13 years of age, white or Negro race, and upper-middle to upper-lower socioeconomic status. A battery of 5 self-administered tests was completed at home and returned by mail. Personality variables assessed were: (1) self-esteem; (2) concern about the child's health; (3) discomfort in caring for the child; (4) trends in child-rearing orientation; and (5) interpersonal satisfactions derived from relating to the child, other family members, and neighbors. Mothers of MRs and neurotics showed higher levels of depression and difficulty in coping with anger directed toward the child and a lower sense of maternal competence than the other groups. Only mothers of the MRs scored higher in "preoccupation with child." All the deficiency groups ranked lower in "enjoyment of child" than the healthy group, but only the neurotic group was significantly lower in deriving satisfaction from relationships with others. The group patterns derived from the personality traits and attitudes of the Ss indicated that, when compared with the healthy controls, the neurotic group was the most deviant, followed by the MR and the chronically ill. (19 refs.) - J. Snodgrass.

Child Psychiatry Clinic
University of Chicago
Chicago, Illinois 60600

1019 Mandelbaum, Arthur. The group process in helping parents of retarded children. Children, 14(6):227-232, 1967.

Sharing the common burden of having a retarded child helps parents to express their feelings in the group and, in a measure, to dissipate them or make them more bearable. The discussion of similar problems and efforts toward their solution lessens the feeling of isolation and "differentness" from the rest of society and enables parents to move out into the larger group of parents of retarded children and to consolidate their efforts in improving the treatment of all retarded. (3 refs.) - E. F. MacGregor.

Menninger Foundation
Topeka, Kansas 66600

1020 National Society for Mentally Handicapped Children. Stress in Families With a Mentally Handicapped Child. London, England, 1967, 36 p. $0.50.

Factors which contribute to the stress experienced by the families of MR children in Great Britain include social and emotional reactions, management, decisions about institutional care, lack of appropriate advice, assessment difficulties, physical debilitation, financial anxiety, and difficulties involved in identifying appropriate medical and educational services. Health and welfare services in different parts of the country are varying and flexible in respect to both the quantity and quality of services available. Permanent decisions to exclude ineducable children from school are influenced by varying educability criteria and are frequently made on the basis of a single examination at an age when the child is too young to permit the precise measurement of future abilities. Alternative educational opportunities are not uniformly available. The educational level of training center staffs is often below standard, and programs are designed either to fill time or to provide social adaptation. Parents should be told that their child is MR as soon as a diagnosis is made. Specialized counseling should be provided to help them understand the child and their feelings about the child. Competent prognostic, genetic, management, and institutional advice should be available. Services for MRs should be integrated, and every community should have a special center which provides access to all agencies concerned with MR. Financial assistance for families, home-help services, and short-stay residential units for SMR children need to be provided. (48 refs.; 24-item reading list) - J. K. Wyatt.

CONTENTS: Preface; Introduction; The Assessment of Subnormality; The Stress of Having a Subnormal Child; Integrating the Services for the Mentally Subnormal.

1021 U. S. Welfare Administration. Feeding the Child With a Handicap. (Children's Bureau.) Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, 1967, 20 p. $0.20.

Handicapped children may have special feeding needs, and the provision of adequate food and nutrition may require the use of specially adapted techniques. Severely handicapped children may need to be taught to suck, swallow, and chew. Parents should experiment with different methods of positioning until one is found that is comfortable and that allows the handicapped child to help himself. Blind and SMR children may need special help in learning finger feeding. Self-feeding should be initiated when a child can swallow liquids and solids without choking. Plate guards, plates anchored in clay to prevent tipping, plates with suction cups, and specially constructed spoons may help a child learn to feed himself. (19 refs.) - J. K. Wyatt.

1022 Heard, J. Norman. Hope Through Doing. New York, New York, John Day, 1968, 187 p. $4.50.

Parents can build a future for an MR child by obtaining competent diagnostic advice, by working for the provision of adequate educational and vocational training facilities in their communities, by joining a parents' association that works actively for the welfare of all MR children, by helping the child to develop his potential and establish harmonious behavior patterns, and by accepting and seeking purpose in the child's affliction. The author describes the development of his 3 MR children, diagnostic and educational difficulties, the founding of 4 parent associations in 4 different locations, the establishment of a vocational training center, and the founding of the Valley Botanical Gardens, a south Texas tourist attraction which provides training and employment for MRs. Since the author emphasizes the therapy available to parents working to help other MR children as well as their own, parents of handicapped children will find this book helpful. (22-item suggested reading list) - J. K. Wyatt.

CONTENTS: A New Life; We Learn About Mental Retardation; We Get on the Treadmill; Good Advice, Poorly Taken; Steve Gets a Little Sister; The Long Year; Steve Comes of School Age; Back on the Treadmill; We Find a Class for Steve; We Take a Giant Stride; To the Magic Valley; The Hidalgo County Council; A Trip to the Rockies; Diane Meets Her Match; An Appeal to the School Board; The Finest Facility; The South Texas Habilitation Center; Medical Crises; Great-Grandpa Gets a Namesake; The Valley Botanical Garden; Days of Concern; An EEG and What It Showed; The Parting; From Good Friday Until Easter; To Wait With Hope.

1023 L'Huillier, Jean (Mrs). La mission des délégués familiaux. (The mission of the afflicted families). Nos Enfants Inadaptes, 24(4):15-17, 1967.

Families with MR children have a mission to carry their heart and faith to other families in the same situation. French organizations modeled within this framework are discussed in relation to their purposes: (1) to group these families together, (2) to help and support them, and (3) to promote centers for their enlightenment through education. Such organizations continue to grow both at the national and local level. (No refs.) - C. A. Pepper.

No address

RELIGION

1024 Mostrom, V. G. Observed effects of religious training programs among low level institutionalized retardates. Paper presented at the 91st annual meeting of the American Association on Mental Deficiency, Denver, Colorado, May 15-20, 1967, 7 p. Mimeographed.

The 4 experimental programs designed to determine the efficacy of religious training for low level MRs were judged to be profitable both spiritually and behaviorally. Nursing personnel observed and rated 69 institutionalized MRs (IQ under 50) before and after the programs. Ss classified as "MR with diseases and condition due to infection" showed lower positive and higher negative responses than the general pattern, while mongoloids scored slightly higher in positive and lower in negative responses. Males showed more positive responses than females despite the fact that 72.5 percent, compared with 38 percent of the females, were profoundly retarded. Seven of the 8 MRs showing more negative than positive responses were probably organically brain damaged and profoundly retarded, and all 8 presented behavior problems. Non-verbal and emotional communications were judged most important in MR programs. (No refs.) - R. D. Perkins.

Woodward State Hospital-School
Woodward, Iowa 50276

1025 Carder, G. (Mrs.) Is there a place in your congregation for a retarded person? Mental Retardation (Canadian ARC), 17(2):9-11, 1967.

It is essential that churches accept MR children and adults into their various services and activities. Religious congregations should make an effort to understand the needs and potential of the MR and should help them gain companionship and social acceptance. (No refs.) - J. Melton.

No address

SELECTED JOURNALS

The journals listed below are scanned regularly for articles pertinent to mental retardation.

Academic Therapy Quarterly
Acta Genetica et Statistica Medica
Acta Neuropathologica
Acta Ophthalmologica
Acta Paediatrica Belgica
Acta Paediatrica Scandinavica
Acta Paedopsychiatrica
Acta Pathologica et Microbiologica Scandinavica
Amentia
American Child
American Education
American Journal of Diseases of Children
American Journal of Human Genetics
American Journal of Medicine
American Journal of Mental Deficiency
American Journal of Nursing
American Journal of Obstetrics and Gynecology
American Journal of Occupational Therapy
American Journal of Ophthalmology
American Journal of Orthopsychiatry
American Journal of Pathology
American Journal of Psychiatry
American Journal of Sociology
American Journal of the Medical Sciences
American Psychologist
American Sociological Review
Annals of Human Genetics
Annales Medico-Psychologiques
Annales Paediatriae Fenniae
Archiv fur Kinderheilkunde
Archives Francaises de Pediatrie
Archives of Dermatology
Archives of Disease in Childhood
Archives of General Psychiatry
Archives of Neurology
Archives of Ophthalmology
Australian Children Limited
Australian Paediatric Journal
Biologia Neonatorum
Brain
British Journal of Educational Psychology
British Journal of Preventive and Social Medicine
British Journal of Psychiatry
British Journal of Psychology
British Journal of Social and Clinical Psychology
British Medical Journal
Bulletin of the Menninger Clinic
California Education
California Mental Health Research Digest
Canada's Mental Health
Canadian Medical Association Journal
Canadian Nurse
Catholic Charities Review
Cerebral Palsy Journal
Cheshire Smile
Child Development
Child Welfare
Children
Children's House
Clinical Pediatrics
Clinical Proceedings of Children's Hospital of the District of Columbia
Community Mental Health Journal
Comprehensive Psychiatry
Confina Psychiatrica
Cytogenetics
Developmental Medicine and Child Neurology
Digest of the Mentally Retarded
Diseases of the Nervous System
Dissertation Abstracts
dsh Abstracts
Education and Training of the Mentally Retarded
Educational and Psychological Measurement
Elementary School Journal
Enfance
Epilepsia
Eugenics Quarterly
Eugenics Review
Exceptional Children
Family Law Quarterly
Federation Proceedings
Forum
Forward Trends
France Medicale
General Practice
Genetic Psychology Monographs
German Medical Monthly
Harvard Educational Review
Health, Education and Welfare Indicators
Health Laboratory Science
Heilpadagogische Forschung
Heilpadagogische Werkblatter
Helvetica Paediatrica Acta
Hospital and Community Psychiatry
Institute of Applied Psychology Review
International Child Welfare Review
International Journal of Neuropsychiatry
International Journal of Religious Education
International Nursing Review
International Rehabilitation Review
Israel Journal of Medical Sciences
Japanese Journal of Child Psychiatry
Journal de Psychologie
Journal of Abnormal Psychology
Journal of Child Psychology and Psychiatry
Journal of Clinical Endocrinology and Metabolism
Journal of Clinical Psychology
Journal of Comparative and Physiological Psychology
Journal of Consulting Psychology
Journal of Counseling Psychology
Journal of Educational Psychology
Journal of Educational Research
Journal of Experimental Child Psychology
Journal of Experimental Medicine
Journal of Experimental Psychology
Journal of General Psychology
Journal of Genetic Psychology
Journal of Medical Genetics

299-809 O - 68 - 11

Journal of Mental Deficiency Research
Journal of Mental Subnormality
Journal of Nervous and Mental Disease
Journal of Neurochemistry
Journal of Neurology, Neurosurgery, and Psychiatry
Journal of Neuropathology and Experimental Neurology
Journal of Neurophysiology
Journal of Neuropsychiatry
Journal of Neurosurgery
Journal of Nutrition
Journal of Pediatrics
Journal of Personality
Journal of Psychiatric Nursing
Journal of Psychology
Journal of Rehabilitation
Journal of Rehabilitation in Asia
Journal of Secondary Education
Journal of Social Psychology
Journal of Special Education
Journal of Speech and Hearing Disorders
Journal of Speech and Hearing Research
Journal of the American Medical Association
Journal of the American Physical Therapy Association
Journal of the Experimental Analysis of Behavior
Journal of the Neurological Sciences
Journal of the South African Logopedic Society
Journal of Verbal Learning and Verbal Behavior
Lancet
Lebenshilfe
Medecine Infantile
Medical Journal of Australia
Medical Science
Medical World News
Megamot
Mental Health
Mental Retardation (AAMD)
Mental Retardation (Canadian ARC)
Mental Retardation in Illinois
Merrill-Palmer Quarterly
Metabolism
Mind Over Matter
Motive
NEA Journal
Neurology
New England Journal of Medicine
New York State Education
Nos Enfants Inadaptes
Nursing Mirror
Nursing Outlook
Nursing Research
Nursing Times
Obstetrics and Gynecology
Ohio State Medical Journal
Our Children
Panminerva Medica
Parents' Voice
Parks and Recreation
Pediatrics
Perceptual and Motor Skills
Perspectives in Biology and Medicine
Pointer
Postgraduate Medical Journal
Proceedings of the Royal Society of Medicine
Proceedings of the Society for Experimental Biology and Medicine
Psychiatria et Neurologia Japonica
Psychiatria, Neurologia, Neurochirurgia
Psychiatric Quarterly
Psychological Bulletin
Psychological Monographs
Psychological Record
Psychological Reports
Psychological Review
Psychology
Psychotherapy and Psychosomatics
Recreation in Treatment Centers
Rehabilitation in Australia
Rehabilitation Literature
Rehabilitation Record
Review of Educational Research
Revista Brasileira de Deficiencia Mental
Revue d'Hygiene et de Medecine Sociale
Revue Neurologique
Science
Scientific American
Slow Learning Child
Social Casework
Social Problems
Social Science and Medicine
Social Work
Southern Medical Journal
Special Education
Special Education in Canada
Special Education Review
Teaching and Training
Texas Medicine
Texas Reports on Biology and Medicine
Tijdschrift voor Zwakzinnigheid en Zwakinnigenzorg
Training School Bulletin
Virginia Journal of Education
Welfare Reporter
Winnower
Zeitschrift fur Heilpadagogik
Zhurnal Nevropatologii i Psikhiatrii imeni S. S. Korsakova

AUTHOR INDEX

The author index has been compiled on the basis of abstract numbers rather than pagination.

Abbo, Gisela, 814
Abrisqueta, J. A., 696
Addelston, Harold Kane, 799
Adinolfi, M., 817
Aherne, W. A., 683
Alford, Charles A., 594
Allen, Amy A., 945
Allen, Charles A., 857
Allen, Mary L., 707
Almeida, June D., 574
Alter, Milton, 756
Anderson, Harry E., 898
Antia, Asuquo U., 722
Aperia, A., 689
Appleton, M. D., 777
Arakawa, Tsuneo, 668
Artenstein, Malcolm S., 583

Bacon, George E., 685
Bailit, Howard L., 836
Bain, Harry W., 652
Bair, Howard V., 960
Baker, Lester, 648
Baker, Sheila A., 985
Balan, M., 686
Ballin, Norman, 717
Banatvala, J. E., 574
Banker, Betty Q., 653
Barbero, Giulio J., 725
Barclay, A., 874, 902
Barnes, George R., Jr., 658
Baroutsou, E., 715
Barrett, Mary L., 839
Barta, Frank, Jr., 896
Baruffi, E. M., 996
Battaglia, Frederick C., 550, 564
Baumeister, Alfred, 870, 872, 875
Baumstein, David, 803
Bayes, Kenneth, 540
Bayley, Helen C., 1018
Bazelon, Mary, 773
Beck, F., 821
Benson, Ralph C., 615
Benton, Joseph G., 905
Berg, J. M., 707
Bergstrand, C. G., 689
Berkson, Gershon, 872
Berman, Phyllis W., 637
Berry, Franklin M., 875
Berry, Helen K., 646
Berry, Kenneth, 665
Bessman, Samuel P., 639
Best, Jennifer M., 574
Bias, Wilma, 775
Birch, Herbert, 891
Bishop, Edward H., 611
Blankenship, Willard J., 594
Blattner, Russell J., 567
Bleck, E. E., 624
Bloom, Wallace, 953
Blount, William R., 877
Bobath, Berta, 625, 626
Bobath, K., 625
Bombart, E., 664
Bongiovanni, Alfred M., 650
Bonomo, Gregory, 710
Bortner, Morton, 891
Bouchard, Joachim, 785
Bouchard, Marc, 785
Bourgeois, M., 617
Bower, B. D., 654
Bowley, Agatha H., 927
Boyd, Joan E., 946
Brandl, Charlene, 881
Breg, W. R., 747
Brereton, Beatrice LeGay, 926
Brett, E. M., 733
Brizzee, K. R., 823
Broberger, O., 689
Brown, Joe R., 694
Brown, Robert K., 754
Brown, Roy I., 805, 831, 865, 907, 917, 918, 919, 920, 930, 940
Brownsword, Elizabeth A., 941, 942
Bruno, Hilda T., 928
Bryant, P. E., 864
Buchan, G. Colin, 588
Budoff, Milton, 863
Buescher, Edward L., 583
Bunting, Kenneth W., 790
Bunting, Rosamund, 665
Burdett, Arthur D., 876
Burdick, Claude O., 754
Burgi, W., 670
Burns, Katherine, 800
Burrow, Will H., 956
Burti, U., 777
Buss, F. Howard, 947
Butler, L. J., 753
Butterfield, Earl C., 866
Butterfield, Gail, 866

Calafiore, Dorothy C., 577
Callaghan, P., 674
Campbell, Marie A., 647
Carder, G. (Mrs.). 1025
Carlson, Coldevin B., 588
Carr, David H., 767
Carr, Edward A., Jr., 685
Carpenter, D. G., 673
Carter, C. H., 673
Carver, Michael J., 818
Casagrande, D., 777
Cassady, George, 594
Cassell, John T., 929, 938
Cawley, John F., 853
Cazden, Courtney B., 852
Ceccarelli, M., 750
Cesta, R. M., 996
Chagnon, Maurice, 838
Champion, William M., 1014
Chapman, M. J., 772
Charles, Don C., 925
Chassan, J. B., 807
Chatten, Jane, 723

Chazan, Maurice, 910
Chen, Ting-Yao, 708
Chennault, Madelyn, 846
Children's Bureau, 556
Childs, Barton, 743
Chrispin, A. R., 575
Clatworthy, H. William, Jr., 695
Clayton, B. E., 595
Cohen, Michael E., 706
Colombatto, Joseph, 1009
Colombo, J. P., 670
Comstock, George W., 597
Connecticut State Health Department, 792, 800, 802, 803, 832, 833, 834, 853, 854, 915, 929, 933, 979, 1005, 1006, 1007, 1008, 1009, 1010, 1016
Connecticut University, 531, 801, 841, 842, 843
Connelly, John P., 710
Conners, C. Keith, 896
Cook, Charlotte, 898
Cooke, Robert E., 722
Cooke, W. A. R., 622
Cooper, CeCilia, 833
Copenhaver, John H., 818
Corey, Margaret J., 755
Corte, Henry, 845
Costom, Dorothy, 804
Cowie, Valerie A., 705, 764, 1017
Cox, Margaret, 655
Coxon, A., 610
Cram, Yetta, 944
Creery, R. D. G., 731
Crescimbeni, Joseph, 913
Crome, L., 753
Cross, Jacque L., 945
Crovitz, Herbert F., 537
Cummings, S. Thomas, 1018
Curi, Joseph F. J., 690
Curtin, Victor T., 717
Cussen, L. J., 590

Dallaire, L., 782
D'Aluisio, Nick, 979
Damrauer, Beverly, 923
Dancis, Joseph, 668
Darnell, Amanda, 759
Davison, B. C. Clare, 714
Day, R. W., 740
De Barsy, A. M., 693
De Bree, P. K., 659
DeCapoa, A., 747
Degenhardt, K. H., 786
De Hirsch, Katrina, 730
DeLong, Johanna, 642
De Loore, I., 675
DeMars, Robert, 631
Dereymaeker, A., 735
Desmond, Murdina M., 567
Devos, E., 719
Dickerson, Donald J., 842
Dierckx, L., 693
DiGeorge, Angelo M., 784
Dobbs, J. P. B., 935
Dodds, Josiah B., 903
Doll, Eugene E., 908
Donnell, George N., 662
Donoghue, Elaine C., 705, 772
Dorman, D. C., 573
Dotts, W. F., 996
Downie, Allan W., 580
Dowsett, Doris, 936
Doxiadis, S. A., 601
Dreyfus-Brisac, C., 732
Driscoll, S. G., 613
Dunn, Henry G., 655
Dybwad, Gunnar, 806, 966

Eagle, Edward, 988
Ebbin, Allan J., 667
Eberlein, Walter R., 650
Eckstein, H. B., 825
Edelmann, Chester M., Jr., 657
Edmonds, C. Jill, 711
Edwards, Eileen M., 635
Ehrlich, Robert M., 649, 652
Eliet-Flescher, J., 732
Eller, Jerry J., 580
Ellis, Hugh L., 714
Emanuel, Irvin, 708, 762
Emanuelsson, Ingemar, 848
Engel, Eric, 781, 790
Esterly, John R., 572
Estes, James, 862
Ettlinger, G., 884
Evison, P. G. H., 753
Eyman, Richard K., 989

Fairweather, D. V. I., 610
Fanconi, A., 687
Fareed, Nuzhat, 758
Farnham, Faith N., 707
Faunch, Janet A., 707
Fenichel, Gerald M., 619
Ferguson, Isobel C., 647
Ferrier, P. E., 791
Ferrier, Simone A., 791
Fialkow, Philip J., 780
Fidis, Nicholas E., 616
Finberg, Laurence, 657
Fine, Marvin J., 857
Flanders, B. H., 970
Fogelson, M. Harold, 698
Fonda, Charles P., 531
Ford, H., 816
Forman, George E., 879
Forrester, R. M., 720
Forssman, H., 636
Foster, Ray, 840
Fotheringham, John B., 826
Fraenkel, William A., 1004
France, N. E., 753
Frankenburg, William K., 903
Frankel, Max G., 922
Franks, Robert C., 790
Franz, J., 786
Frasier, S. Douglas, 651
Freda, Vincent J., 603

Friedlander, George A., 854
Friedman, C. Jack, 634
Friedman, Jacob H., 797
Froelich, Ralph D., 632
Frøland, Anders, 789
Fulginiti, Vincent A., 580
Fulton, Robert T., 855, 861
Furth, Hans G., 890
Furuhjelm, U., 602

Gaillard, J. L. J., 760
Gambin, Miguel A., 741
Gardner, B., 817
Gardner, William I., 881
Gaudier, B., 664
Gauthier, J., 748
Gay, Y., 748
Geber, William F., 820
Gellman, William, 964
Genest, Paul, 785
Genton, N., 791
Georgas, D., 715
Ghadimi, H., 628
Gilder, S. S. B., 571
Giles, C. E., 642
Gilgert, Valerie Y., 937
Gilliver, B. E., 605
Gilreath, Marilyn, 998
Ginglend, David, 933
Giorgi, P. L., 750
Girardeau, Frederic L., 845
Gleason, Walter, 983
Goldberg, Albert C., 698
Gomez, Manuel R., 697
Gordon, Alan M., 856
Gordon, Musetta C., 856
Gordon, W. L., 992
Gorelick, Molly C., 955
Gorman, John G., 603
Gottesfeld, Kenneth R., 561
Goulet, L. R., 874
Graham, Frances K., 637
Graw, Robert G., 645
Greater Hartford Association for Retarded Children, 792, 800, 802, 803, 832, 833, 834, 853, 854, 915, 929, 933, 979, 1005, 1006, 1007, 1008, 1009, 1010
Gries, F. A., 613
Griffith, John F., 710
Griffiths, A., 821
Grossman, Herman, 690
Group for the Advancement of Psychiatry, 533
Grove, Frances A., 980, 982
Gruber, Elizabeth, 921
Gurdjian, E. S., 623
Gwinn, John L., 658

Haab, W., 777
Hagberg, Bengt, 736
Haka, Katerina K., 547
Hall, Bryan, 759
Halldorsson, S., 710
Hamilton, William, 701
Hammond, Jack, 709
Handy, Joseph S., 931
Hanner, T. G., 559
Hansen, Shirley, 665
Hanson, James W., 906
Happ, F. William, 922, 981
Harley, J. D., 573
Harper, J. R., 702
Harris, F., 779
Hasitavej, Rasmee, 794
Hastings, Marguerite J., 530
Hawkins, William F., 870
Hawks, D. V., 729
Hayakawa, Hiroshi, 724
Hayes, Kathleen, 575
Haywood, H. Carl, 880
Heard, J. Norman, 1022
Hecht, Frederick, 761
Hedinger, Chr., 791
Heering, Anton H., 965, 966, 967, 968, 969, 970, 971, 972, 973, 974
Heggie, Alfred D., 569
Heldrich, Fred J., Jr., 684
Hennen, B. K. E., 671
Hermelin, Beate, 865, 895
Herr, Edwin L., 850
Hertzberg, R., 573
Hetherington, E. Mavis, 869
Hilburn, Jean M., 651
Hill, Charlotte Weeks, 703
Hill, Reba M., 813
Hirano, Chisato, 699
Hirano, Takashi, 699
Hirsch, W., 629
Hirschenfang, Samuel, 905
Hockey, K. A., 729
Hodgson, V. R., 623
Hoeltke, Gary M., 911
Holland, Jean M., 870
Hollis, John H., 892, 893
Holmes, Joseph H., 561
Hom, George L., 878
Hooft, C., 719
Horger, E. O., III, 599
Horwitz, S. J., 734
Hoskins, Blaine L., 615
Howorth, Irene E., 553
Huang, Chin-Chiang, 708
Huang, Shih-Wen, 708, 762
Huddle, Donald D., 952
Huessy, H. R., 618
Hughes, M. I., 610
Huntley, Carolyn, 667
Hurowitz, Robert, 792
Hutchison, Alexander, 968
Hutchison, James H., 647
Hutzler, Joel, 668
Hsia, David Yi-Yung, 676
Hsu, C. -C, 762

Illig, R., 692
Ingall, David, 589
International League of Societies for the Mentally Handicapped, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974

Ioannidis, Th., 715
Israel, S. Leon, 611,
Iturzaeta, Nenita, 688

Jackson, Elgin F., 798
Jacobson, David P., 677
Jakab, Irene, 829
Jancar, J., 721
Jansen, Barbara C., 855
Jansky, Jeannette, 730
Jansseune, H., 680
Jauregui, Guillermo R., 741
Jaworska, M., 809
Jedrysek, Eleanora, 549
Jenkins, Richard L., 771
Johnson, Janet M., 849
Johnson, Kenneth P., 711,
Johnson, Richard T., 711
Jones, Barbara, 824
Jones, Margaret H., 839
Joppich, G., 581
Jordan, William R., 600
Jouseau, H., 1013
Jouvet, M., 808
Joyce, Eugene E., 717

Kahn, Harris, 876
Kanner, Leo, 532
Kasahara, Shoichi, 759
Katz-Suchy, E., 809
Kaye, Robert, 648
Keenan, Karen, 929
Keeran, Charles V., 980
Keith, C. G., 753
Kellett, W. W., III, 599
Kelley, Francis, 979
Kelley, Vincent C., 656
Kempe, C. Henry, 580
Kennedy, Eugene P., 682
Kenny, Frederic M., 688
Kern, Frank E., 898
Kern, William H., 871
Kerr, Margaret M., 647
Killander, Andreas 736
King, B. W., 972
King, Lester S., 548
Kingsmill-Flynn, D., 782
Kivalo, E., 765
Klaber, Michael, 802
Klein, D., 791
Kliebhan, Joanne Marie, 951
Knolle, J., 788
Kobayashi, Noboru, 724
Koch, Richard 645
Kohn, Gertrude, 778
Kolar, Oldrich, 558
Kolmen, Barbara, 796
Komrower, G. M., 661
Koutsoulieris, E., 779
Kreuter, Mortimer, 959
Kriekemans, J., 719
Kristensson, K., 636
Krivit, William, 562
Krogman, Wilton Marion, 742
Krugman, Saul, 579
Krusen, Margaret M., 958
Kuzemko, J. A., 714
Kyriakidou, V., 587

LaCrosse, Edward L., 1006
Lagos, Jorge C., 697
Lagunoff, David, 678
Lamarche, J. B., 766
Lambert, Ann M., 661
Lamp, Robert E., 902
Langford, William S., 730
LaRamée, M. A., 681
Laurence, K. M., 713
Laurent, C., 748
Lavender, Joseph, 915
Lavis, Leonard W., 958
Leck, Ian, 992
Legg, Nigel J., 582
Leland, Henry, 840, 960
Leonard, Martha F., 834
Lerner, E. M., 586
Levin, Sidney, 722
Levine, Ronald H., 576
Levy, Harvey L., 589
L'Huillier, Jean (Mrs.), 1023
Liao, S. -K., 762
Lieberman, Ellin, 663
Lieberman, R., 643
Lingren, Ronald H., 873
Litchman, Henry M., 627
Livingston, Samuel, 739
Lloyd, J. B., 821
Lloyd, John L., 991
Lo, Judy, 762
Lobb, Harold, 837
Logothetis, John, 738
LoGrippo, Gerald A., 746
Lombardi, Thomas P., 984
Long, Earl L., 1010
Longmore, J. B., 720
Loo, H., 592
Loo, P., 592
Lovelace, R. E., 734
Lowden, J. A., 681
Lowrey, George H., 685
Lowry, R. B., 755
Lozzio, Carmen B., 741
Lu, Elsie Go, 897
Lubchenco, Lula O., 550
Luce, Anna, 767
Lucey, Jerold F., 601, 614
Luckey, Bertha M., 536
Lundin, Frank E., Jr., 597
Lupulescu, A., 686

Mabry, C. Charlton, 640
MacKeith, Ronald, 551, 565
Maclean, J. R., 755
MacMahon, Brian, 712
Majlert, T., 809
Malone, H. John, 754
Mandelbaum, Arthur, 1019
Mann, James W., 1014

Mansfield Training School, 531, 801, 841, 842, 843
Mantel, Nathan, 770
Marden, Philip M., 752
Marie, J., 672
Marra, Joseph, 963
Marshall, W. C., 575
Marshall, W. J. S., 584
Martin, J. J., 680
Martin, Julio M., 649, 650
Martin, Robert A., 901
Masovic, S., 973
Mathews, A., 884
Matsaniotis, N., 715
Matson, Donald D., 706
Matthews, Nancy L., 651
Mayer, C. Lamar, 844
Maynard, C. Douglas, 559
Mazur, Elzbieta, 560
Mazur, Roman, 560
McAdams, A. James, 716
McBain, Kenneth A., 539
McBean, M. S., 633
McClain, Edward J., 677
McCreary, B. D., 707
McDonald, John S., 814
McGunigle, Diane, 989
McIntosh, Dean K., 978
McKean, C. M., 643
McKeown, Thomas, 992
McKerracher, D. W., 828
McLoughlin, T. G., 700
McNamara, Dan G., 813
Medovy, Harry, 815
Medvene, Arnold M., 857
Mein, Richard 940
Melis, Roger, 560
Mellman, William J., 778
Mello, James, 979
Melnick, Joseph L., 567
Melnyk, John, 751
Mende, Robert, 914
Menkes, John H., 630
Menser, Margaret A., 573
Merritt, A. Donald, 758
Mex, Annemarie, 629
Meyers, C. E., 912
Meyers, Elizabeth S., 912
Migeon, Barbara, 775
Migeon, Claude J., 688
Milgram, Norman A., 890, 900
Miller, Colin G., 568
Miller, D. A., 747
Miller, Meredith H., 704
Miller, Michael E., 723, 778
Miller, O. J., 747
Miller, Robert M., 563
Milunsky, Aubrey, 705
Minnesota, Public Welfare Department, 1015
Mittler, Peter, 920
Moens, E., 693
Moffett, A., 884
Monahan, Robert Hugh, 703
Moncrieff, A. A., 595
Money, John, 904
Monnet, P., 748
Monod, N., 732
Moossy, John, 691
Morikawa, Toshio, 668
Morrison, Mary, 826
Mostrom, V. G., 1024
Muehlberger, Carl E., 975
Müller, D., 581
Muller, Helga, 740
Murphy, A. M., 573
Murphy, John W., 759
Murray, John J., 614
Murray, S., 610
Myers, R. E., 586

Nader, Philip R., 576
Naeye, R. L., 744
Naggan, Lechaim, 712
National Society for Mentally Handicapped Children, 1020
Neel, James V., 811
Negoescu, I., 686
Nelson, Karen, 676
Nevanlinna, H. R., 602
New Jersey, Division of Mental Retardation, 987
New, Maria, 690
Newman, C. G. H., 674
Nicolae, M., 686
Nihira, Kazuo, 840
Nilsson, Ingemar, 909
Nishimura, Hideo, 810
Nuyts, J. P., 664
Noé, Ossey, 709
Nora, Audrey H., 813
Nora, James J., 813
Norman, R. M., 683
Novello, Joseph W., 934
Nyhan, W. L., 673

O'Connor, N., 895
Ogbeide, M. I., 578
O'Hara, P. T., 774
Ohio Education Department, 945
Ojemann, Robert G., 710
Oliver, B. E., 596
Olson, Lloyd C., 583
Omwake, Eveline, 832
Ong, Beale H., 783
Ong, Eng Bee, 666
Ootsuki, Nobuko, 699
Oppenheimer, D. R., 683
Ornitz, Edward M., 555
Osborne, R. T., 889
Oski, Frank A., 778
Österlund, K., 602
Ostlund, Leonard A., 954
Ottesen, Ole E., 722
Overzier, C., 788

Paci, A., 750
Page, Edward K., 858
Palmer, Catherine G., 758

Paour, Jean, 962
Parker, Neville, 718
Parkman, Paul D., 583
Parry, J., 592
Partington, M. W., 671
Passarge, Eberhard, 716
Patrick, L. M., 623
Pearce, P., 749
Pedrini, Duilio T., 899, 958
Penrose, L. S., 774
Perry, Thomas L., 665
Pesek, J., 673
Peterson, James A., 746
Petre-Quadens, O., 808
Petrovici, A., 686
Peytel, J., 748
Philippart, M., 680
Phillips, Mary, 805
Pineda, Rebecca G., 567
Pirofsky, Bernard, 615
Pitt, D. B. 749
Pitt, Elaine L., 772
Platt, Henry, 948
Poley, J. R., 692
Pollack, William, 603
Poncet, J., 748
Pozsonyi, Joseph, 837
Prader, A., 687, 692
Prasad, A. L. N., 648
Preeyasombat, Chawalit, 688
Prehm, Herbert J., 868
Priebe, Cedric J., Jr., 695
Pritchard, Jack A., 598
Pugsley, Louis O., 616
Punnett, Hope H., 784
Pupene, Mary B., 666

Quigley, Marilyn, 740

Randall, John L., 614
Rappaport, R., 672
Rayner, P. H. W., 654
Rees, J. N., 537
Reichert, Albert, 656
Reisman, Leonard E., 759
Reiss, Philip, 888
Rendina, G., 642
Renkonen, K. O., 609
Rhines, R., 816
Richards, B. W., 768, 769, 776
Richterich, R., 670
Ridler, M. A. C., 707
Rie, Herbert E., 1018
Ritvo, Edward R., 555
Roaf, Robert, 720
Robbins, Melvyn P., 939
Robert, _, 644
Roberts, D. F., 714
Roberts, G. E., 595
Robertson, Mary Frances, 830
Robson, Peter, 552
Root, Allen W., 648, 650
Rosenfield, Robert L., 650
Rosenthal, Alan D., 706
Rosner, Fred, 763
Ross, Leonard E., 869
Rossi, E., 670
Rost, Kim J., 925
Rowe, Richard D., 722
Royer, P., 672
Rudolph, Arnold J., 567
Ruebner, Boris H., 572
Russell, James D., 631
Ruvalcaba, Rogelio H. A., 656
Ryan, G. B., 590
Ryan, M. F., 642

Saba, S., 592
Sachsse, W., 788
Sackett, Gene P., 882
Saggers, B. A., 772
Salazar, Harriett, 994
Sattler, Jennifer, 926
Saunders, R. V., 918
Scagliotta, Edward G., 943
Scala, Michael, 627
Schaberg, A., 760
Schaefer, Joanna, 594
Schain, Richard J., 818
Schärer, K. O., 791
Schiffman, Harold, 537
Schneider, J. Morton, 615
Schneider, Peter B., 682
Schneider, Sheldon R., 1011
Schroeder, David M., 1001
Schulenberg, Robert, 756
Schultz, H. F., 996
Schutta, Henry S., 822
Scornavachi, Juan C., 741
Scott, C. Ronald, 678
Scott, D. F., 884
Scriver, Charles R., 669
Selvaggio, Vito J., 949
Seppäläinen, A. M., 765
Sergovich, Fred R., 767
Shaheen, Eleanor, 725
Shanklin, D. R., 700
Sharp, Harvey L., 562
Shaw, Cheng-Mei, 588
Shaw, Kenneth N. F., 662
Shellhaas, Max, 840
Shubert, O. Wendell, 855
Sicard, U., 793
Siegel, Paul S., 879
Silber, Maurycy, 905
Silberberg, Donald H., 822
Silver, Caroll M., 627
Simon, Stanley D., 627
Simopoulos, Artemis P., 616
Simpson, P. F., 916
Singer, Don B., 567
Sites, James G., 616
Slusser, Ruby J., 572
Smith, Carl B., 1000
Smith, Charles E., 991
Smith, Donald C., 901
Smith, G. F., 707, 774
Smith, Maurice P., 922

Smithells, R. W., 812
Snodgrass, G. J. A. I., 753
Snyder, C. Harrison, 737
Solitare, G. B., 766
Solomons, Gerald, 795
Sommer, J. J., 971
Sommerville, Robert J., 813
Sorel, L., 735
Soriano, Juan Rodriguez, 657
Sourander, P., 636
Southby, Robert, 554
Spector, R. G., 819
Speijer, N., 961
Spindell, Edward, 627
Spiro, Alfred J., 698
Spitz, Herman H., 887
Spivack, George, 827
Spotts, Jules, 827
Spradlin, Joseph E., 845
Sršeň, S., 621
Stabler, Elizabeth M., 1008
Stahlecker, Lotar V., 976
Stancu, H., 686
Stark, Charles R., 770
Steinke, J., 613
Steisel, Ira M., 634
Stephenson, J. B. P., 633
Stern, J., 772
Stimmler, L., 654
Stoian, M., 686
Stolyhwo, Andrzej, 560
Stone, S. H., 586
Stone, Stuart R., 598
Straumfjord, Jon V., 594
Ströder, J., 591
Sutherland, G., 749
Svennerholm, L., 636
Svanson, S. E., 807
Sweetman, L., 673
Switzer, Ann, 1007
Széky, J., 692

Tacchi, D., 610
Tada, Keiya, 668
Taitz, Leonard S., 657
Takano, Kiichi, 810
Talbot, Mabel, 535
Tang, Fay C. F., 838
Tarjan, George, 989
Taylor, E. Stewart, 561
Taylor, Floyd H., 688
Terdal, Leif G., 867, 894
Ter Meulen, V., 581
Thomas, L. M., 623
Thompson, Horace E., 561
Thorburn, Marigold J., 568
Thorne, Gareth D., 986
Tichauer, E. R., 957
Tillman, M. H., 889
Timonen, S., 609
Tingey, A. H., 683
Tischler, Bluma, 665
Tolley, J. N., 930
Traen, S., 719
Tranquada, Robert E., 667
Trojaut, N., 617
Trump, Benjamin F., 678
Turner, Brian, 663
Tuttle, J. M., 642

Ucer, Erol, 993
Underdahl, Norman R., 818
U. S. Health, Education, & Welfare Department, 544, 545, 977
U. S. Public Health Service, 538, 1002
U. S. Welfare Administration, 1021
Unkovic, Charles M., 946

Valaes, T., 601
Van Acker, K., 719
Van Gelderen, H. H., 675, 760
Van Kempen, C., 757
Van Oudenhoven, N. J. A., 847
Van Sprang, F. J., 659, 660
Van Stekelenburg, G. J., 659
Vanston, A. Rorke, 541
Vanucci, Robert C., 690
Venters, Homer D., 703
Verdonk, G., 719
Vernon, McCay, 859, 860
Vizzoni, L., 750
Vogel, F., 629
Von Sallmann, L., 586
Voss, Dorothy, 843

Wada, Yoshiro, 668
Wadman, S. K., 659, 660
Waisman, Harry A., 637, 638
Walker, Don, 1003
Walker, W., 610
Walker, W. Allan, 562
Walker, W. Lumsden, 831
Walter, Richard D., 555
Wang, Christine, 904
Warburton, D., 747
Warren, Robert J., 576
Waterson, A. P., 574
Watson, R. A., 828
Watts, D. C., 819
Watts, James W., 704
Weaver, Ann, 851
Weaver, S. Joseph, 851, 880
Webb, R. B., 643
Weber, Lennard L., 611
Wecker, E., 591
Wehrmeijer, J. W., 967, 969
Weiss, Lester, 746
Weleber, Richard G., 761
Wells, Donald G., 899
Wells, E. (Mrs.), 924
Wentworth, P., 681
Werner, Geraldine, 932
Whelan, Mary Anne, 836
Wiener, S., 749
Willemin-Clog, L., 748
Williams, Alec A. 919
Williams, J. Earl, 991
Williams, Joann, 879

Williams, Paul, 886
Williams, Phillip, 921
Williamson, H. O., 599
Wilson, B. D. R., 674
Wilson, Geraldine S., 567
Wilson, Miriam G., 751
Wiltse, Hobart E., 722
Wintsch, H., 974
Witcofski, Richard L., 559
Wolf, Charles B., 746
Wolff, Otto, 679
Wolff, Peter H., 835
Wollen, W., 534
Wong, Paul W. K., 661
Wood, Alfred C., Jr., 634
Woody, Norman C., 666
Woody, Robert H., 850
Woolf, L. I., 641
Wortis, Helen, 549, 566
Wortis, Joseph, 549
Wright, Charles E., 684
Wright, S. W., 740
Wright, Yvonne M., 754
Wunderlich, Ray C., 883

Yale, Harriet, 801
Yamamura, Michio, 699
Yap, S. L., 819
Yonekura, Ikuo, 699
Young, Ellery, 862
Young, L., 674
Young, Robert, 950
Yunis, Jorge J., 752

Zachmann, M., 692
Zeigler, Lili, 990
Zellweger, Hans, 814, 906
Zeman, Wolfgang, 558
Zetterström, R., 689
Ziai, Mir-Hashem, 567
Zion, Thomas E., 567
Züblin, W., 787
Zucman, Elisabeth, 1012
Zwerdling, Michael A., 728

SUBJECT INDEX

The subject index has been compiled on the basis of abstract numbers rather than pagination.

Abortion
  genetic aspect, 811
  from rubella, 569
  pediatric aspect, 812
  therapeutic, 812
Achievement, academic
  (See Education, special)
Acromicria
  (See Mongolism)
Adaptive behavior
  (See Behavior)
Adjustment/Personal-social
  (See also Attitudes; Behavior; Social relations)
  anxiety,
    & learning, 873
  institutional,
    adolescents, 827
  parental, 1017, 1018, 1020, 1022
  post-school, 847, 848
  social, 928
Adolescence
  behavior of,
    social & communication, 845
    symptom pattern, 827
  social maturity, 928
  & vocational realism, 955
  volunteer program, 998, 999
Adult
  reading program, 941, 942
Agencies
  Civil Service, 975
  Connecticut Health Department, 1016
  Minnesota Department of Public Welfare, 1015
  Subcommittee of Institutional Parents for Information, 994
Amaurotic familial idiocy
  (See Histiocytosis, lipid, of phosphatide type)
Amino acids
  (See also Metabolism; specific disorders)
  carnosine, 665
  leucine, 654, 667
  lysine, 666, 670
  phenylalanine, 642, 643
    in MR c/w normals, 629
  tyrosine,
    in MR c/w normals, 629
  uptake in CNS, 816
  uric acid, 673
  valine, 668, 669
Amniography
  (See Roentgenography)
Anemia
  megaloblastic,
    from anticonvulsive drugs, 736
Anencephaly
  environmental relation, 727
  genetics of, 811
  incidence,
    ethnic differences, 712
Angiography
  (See Roentgenography)
Angiomatosis
  trigeminal,
    cerebral (Sturge-Weber-Dimitri syndrome), 696
Anoxia
  & enzyme level, 819
  neuropathological effects, 620, 653
Anxiety
  (See Adjustment/Personal-social)
Arachnodactyly
  diagnosis,
    in neonate, 684
Architecture
  design features, 541, 542, 543
    & rehabilitation, 960
  planning & programming, 541
  philosophy, 541
  therapeutic effect, 540
Asphyxia
  (See Anoxia)
Ataxia-telangiectasia
  (See Telangiectasis)
Attitudes
  of handicapped, 833
  of MR, 846, 953
  of physician, 794
Australia
  treatment for c.p.,926
Autism/Non-verbal child
  deafness in, 555
  memory in, 895
  therapeutic team, 554
Bacteria
  enterobacteria, 590
  Proteus mirabilis, 589
  Toxoplasma, 592
Behavior
  (See also Adjustment/Personal-social)
  aberrant, 886
  adaptive,
    assessment of, 840
  of adolescents,
    institutions, 827
  in classroom, 826
  cooperative, 849
  interaction patterns,
    of PKUs, 634

Abbreviations: b.i. - brain injury or brain injured; c/w - compared with; c.p. - cerebral palsy; EMR - educable mentally retarded; ep. - epilepsy; inst. - institutional, institutionalized; MR - mentally retarded; SMR - severely mentally retarded; TMR - trainable mentally retarded; w/ - with.

maladaptive reactions,
social offenders, 959
of TMR, 826
of YY males, 787
modeling, 951
modification of,
by environmental manipulation, 801, 841, 842, 843
by music, 849
nail-biting, 828
in PKUs, 634, 635
social, 842
& communication, 845
Bibliography
development & neurology, 546
educational materials, 945
publication on MR, 545
research grants, 544
Bilirubin
encephalopathy, 601, 822
Birth
midforceps operation, 622
& protein metabolism, 818
Birth weight
(See also Prematurity)
classification by, 550, 731
& hypoglycemia, 655
& MR, 729
Blind MR
education, 924
Blindness
w/ bone dysplasia & deafness, 720
Blood
brain barrier, 735, 816
gamma globulin,
in mongoloids, 777, 778
protein, 817
serotonin in mongolism, 763, 773
types,
& mental illness, 617
Blood disorder
(See also Blood incompatibility)
isoagglutinin deficiency, 775
lymphocyte,
crystalline bodies in, 774
Blood incompatibility
(See also Rh incompatibility)
ABO, 602
diagnosis, 615
exchange transfusion,
criteria for, 611
follow-up study, 610
grandmother,
role of, 612
management of, 616
Bogaert's disease
(See Encephalitis)
Bone
dysplasia, 720
Bourneville's disease
(See Sclerosis tuberous)
Brain
agyria,
w/ infantile spasms, 702
blood-brain barrier, 735
demyelination,
in PKU, 636
development,
measurement of, 766
in mongolism, 766
& radiation, 823
hemorrhage, 621
metabolism, 818
necrosis, 590
scanning,
w/ hydrocephalometer, 560
& skull lesions, 559
tumor, 694, 695
Brain injury
(See also Cerebral palsy; Education, special)
assessment of, 905, 918
characteristics,
conceptual ability, 891
diagnosis of,
w/ Bender-Gestalt, 901
& enzyme level, 819
from impact, 623
incidence, 618
muscle abnormality, 619
perception,
& information transfer, 896
psychological effects,
c/w PKU, MR, & normals, 634
treatment,
drug, 618, 885
lack of, 620
Cardiac disorder
in autosome disorder, 759
supravalvular aortic stenosis,
pathogenesis of, 722
Carnosinemia
case report, 665
Central nervous system
amino acids,
uptake of, 816
diseases of,
diagnosis, 558, 560
infection of, 583
malformations,
& environment, 727
incidence of, 809
serotonin in, 632
Cerebral functions
(See Brain)
Cerebral gigantism
(See Gigantism)
Cerebral palsy
(See also Brain injury)
conceptual ability, 891
& ectrodactyly, 721
habilitation of, 839, 927
treatment, 926
foot surgery, 624, 625
neuro-developmental, 625
postural patterning, 626

Cerebrovascular system
(See also Brain)
dilation in achondroplasia, 706
Cerebro-hepato-renal syndrome
case report, 716
Chromosomal anomalies
(See also Genetics; specific disorders)
autosomal anomalies, general
aneuploidy, 767, 782
D-group, 750
in DeLange syndrome, 707
E-group, 757
possible new syndrome, 750
& cell & growth, 744
deletions, partial,
no. 5, 747
G-group, 759
diagnosis of,
by electronic scanning, 557
duplication,
no. 5, 747
immunologic changes, 781
incidence,
& age, 769
in MR sibs, 740
mosaicism, 741, 753, 760, 762, 784, 791
pericentric,
C-group, 749
ring chromosome,
no. 2, 746
no. 18, 758
G-group, 761
sex chromosome anomalies,
satellited Y, 785
XO, 781
XXY (Klinefelter's), 784, 789, 904
XXYY, 788
XYY, 790, 791
YY, 787
& thyroid antibodies, 780, 781, 782
translocation, 751, 754, 762, 763, 776, 783
trisomic syndromes,
6-12 (C), 748
13-15 (D), 744, 751, 752, 753
17-18 (E), 744, 755, 756
21-22 (G), 744, 754, 760, 761, 762, 767, 776, 778, 779, 783, 784
Chronological age
& mongolism,
maternal, 769, 780, 809
paternal, 770, 771
Church
(See Religion)
Cockayne's syndrome
neuropathology in, 691
Communication
through art, 937
disorders,
therapy for, 554
processes, 853
by shadow, 830
Community programs
(See also Day care programs; Regional center)
care of MR, 806, 1004, 1012
comprehensive, 1002, 1003
foster home, 1011
guidelines for, 1002
religion, 1025
for service improvement, 530
university research center, 539
Congenital anomalies
(See also specific diseases)
in chromosomal aberration, 750, 757
cytogenetic study, 786
& drugs,
during pregnancy, 813
LSD, 814, 820
incidence of,
& maternal age, 809
induced by alloxan diabetes, 810
Connecticut
association for MR, 1007, 1008
day care in, 1005, 1006
recreational activity, 979
special education in, 915
vocational rehabilitation, 963
Counseling
(See Guidance)
Cretinism
thyroid gland structure, 686
treatment,
evaluation of, 685
Cri du chat syndrome
translocation heterozygosis, 747
Culturally deprived
(See Sociocultural factors)
Cystathioninuria
in galactosemia & liver disease, 662
Day care programs
& association for MR, 1007, 1008
general information, 530, 1005, 1006
in-service training, 1005, 1006, 1007, 1008, 1009, 1010
& psychologist-teacher team, 802
& regional center, 1009
Deafness
blindness & bone dysplasia, 720
complications of, 859, 860
diagnosis of, 553, 555
& Rh factor, 859
& rubella, 860
DeLange syndrome
in Chinese, 708
chromosome study, 707
etiology of, 709
in Negro, 707, 709
Denistry
office technique, 799
oral hygiene survey, 991
orthodontia, 798
Dentition
genetics of, 742

Deprivation
emotional, 831
environmental, 725, 726, 851
sensory, 886
Dermatoglyphic pattern
in angiomatosis, 696
in Rubinstein-Taybi snydrome, 714
in trisomy 18/normal mosaic, 756
Development
(See also specific areas of interest)
bibliography, 546
& biological rhythms, 835
cell & organ,
in chromosome disorders, 744
childhood, 832
cranio-facial, 742
& genetics, 743
& malnutrition, 815
in mongoloids, 764
neurological, 835
neuromuscular, 841, 842, 843
perceptual motor, 892, 893
retardation in, 725
sensori-motor, 845
sexual, 790, 791
skeletal, 837
theory,
Piagetian, 888
Diagnosis
(See Mental Retardation & specific disorders)
Diabetes
& congenital malformations, 810
in pregnancy, 599, 600
Diencephalic syndrome
clinical features, 701
Digit
abnormality, 714, 721
digito-ocular phenomenon, 715
Down's snydrome
(See Mongolism)
Drug treatment
(See also specific disorders)
acetazolamide, 710
allopurinol, 745
alloxan, 810
amphetamine, 618, 885
amylocaine, 735
w/b.i., 618, 885
diazoxide, 648, 654
diazepam, 739
Dilantin, 618
dioxone, 735
diphenylhydantoin, 734
w/encephalitis, 584
w/epilepsy, 734, 736, 737, 738, 739
folic acid, 736
hexylcaine, 735
hydrocortisone cypionate, 737
w/hydrocephalus, 710
w/hypoglycemia, 648, 654
idoxuridine, 584
& learning disorders, 885
lidocaine, 735
Lysergic acid diethylamide (LSD), 814, 820
magnesium sulfate, 598
methetoin, 738
penicillamine, 596, 745
pharmacogenetics, 745
phenobarbitone, 736
phenytoin, 618, 736
pregnancy, treatment during, 598, 813
primidone, 736
Ritalin, 618
& single-case design, 807
Dwarfism
in Cockayne's syndrome, 691
& growth hormone, 650, 651
hypopituitary
treatment of, 692
w/MR & hypoplasia, 693
& ring chromosome, 746
Education, special
(See also Rehabilitation/habilitation, vocational)
academic achievement, 925
architecture, 541, 542, 543
behavior problems in, 826
for blind MR, 924
for brain injured, 918, 925
for cerebral palsy, 839, 926, 927
curricular provisions,
art, 937, 938
language arts, 853, 854
music, 933, 934, 935, 936
physical education, 979
reading, 940
Doman-Delacato reading, 939
adult, 941, 942
sex education, 931, 932
social training, 928, 929, 930
diagnostic teaching, 922
for emotionally disturbed, 834, 920
history of, 535, 908
methods & aids,
general, 922
materials listing, 945
newspaper, 944
for out of school learning, 928
tinker boards, 943
personnel,
teacher,
(See Teacher)
philosophy & objectives, 911, 912, 914, 916, 917, 922, 930
for physically handicapped, 833
placement, 911, 912, 913, 919, 921
pre-school, 804, 832, 839, 926
programs,
multi-sensory training, 839
need for, 914
state, 915
vocational, 930, 951
regular vs. special class, 857, 911
for slow learner, 831, 923, 935
socio-economic factors, 921
for TMR, 826

trends in, 908
in Great Britain, 910, 920
in Sweden, 909
Electroencephalography
in experimental epilepsy, 735
in mongolism, 765
in panencephalitis, 587
Electromyography
in panencephalitis, 587
Emotional disturbance/Emotionally disturbed
adolescent, 827
architecture,
therapeutic effect, 540
education of, 920
graphic expression of, 829
information transfer in, 896
nail-biting, 828
in slow learners, 831
therapy, 834, 885
shadow, 830
Encephalitis
herpes simplex, 583, 585
treatment of, 584
panencephalitis,
brain tissue study, 581
clinical aspects of, 587
& measles, 582
myxovirus in, 588
Encephalopathy
(See also Brain; specific encephalopathies)
bilirubin, 822
epileptogenous, 733
experimental,
ocular abnormalities in, 586
England
(See Great Britain)
Environment
& CNS deformities, 727
& failure to thrive, 725
& poverty, 726
Environmental deprivation
(See Deprivation)
Enzyme
activity,
in mongoloids, 776
creatine kinase, 819
galactose-phosphate uridyl transferase, 631
glucuronyl transferase, 824
sphingomyelinase, 682
tyrosinase, 630
Epilepsy
(See also Brain injury; Congenital anomalies)
in carnosinemia, 665
EEG pattern, 735
experimental,
& blood brain barrier, 735
infantile, 737
in cerebral agyria, 702
& learning,
effect on, 884
mode of onset, 733
in mongolism, 765
neurocutaneous syndrome, 703
treatment of,
drug, 737, 738
legal problems, 739
long-term effect, 734
& metabolic changes, 736
Erythroblastosis fetalis
& deafness, 859
diagnosis, 615
factors preceding, 609
grandmother's role, 612
& hypoglycemia, 614
insulin activity in, 613
prevention of, 603, 604, 605, 606, 607, 608
Face
abnormality of, 714, 722, 758
diplegia of, 718
genetic development of, 742
Family
& educator, 946
factors,
& inst., 994
services for, 1012, 1023
therapy, 993
Fetus/Fetal
mortality,
in prolonged pregnancy, 728
Finance
& sheltered workshops, 965, 974
Franceschetti syndrome
case report, 715
Galactosemia
cystathioninuria in, 662
enzyme activity in, 631
screening test,
fluorescent spot test, 676
Gargoylism
c/w familial neurovisceral lipidosis, 678
Genetics
(See also Chromosomal anomalies; specific disorders)
& abortion, 811
& child development, 743
counseling, 644, 787
pharmacogenetics, 745
X-linked disorder, 673
Germany
sheltered workshops in, 965, 971
Gestational age
classification by, 550
& protein metabolism, 818
small for,
management of, 731
& MR, 729
Gigantism
cerebral,
case report, 705
in diencephalic syndrome, 701

Glycogen storage disease
(See Glycogenosis)
Glycogenosis (Von Gierke's disease)
variant of, 675
Gonadal dysgenesis
thyroid autoimmunity, 781
Great Britain
sheltered workshops, 965, 968, 970, 972
special education, 907, 910, 917, 918, 919, 921
social workers role in, 805
training center in, 916
Growth disorders
(See also Physical development; specific disorders)
treatment, 650, 651
Guidance
(See also Genetics; Parent/Parental; Psychotherapy)
neurologic & psychiatric, 797
in vocational habilitation, 976
Hearing
in "at risk" infant, 553
evaluation, 555, 556, 861, 862
program, 854
survey, 980
Hemolytic diseases
(See Blood disorder)
Hepatitis
idiopathic neonatal,
& rubella syndrome, 572
Histidinemia
biochemical & clinical data, 659
treatment,
dietary, 660
Histiocytosis
lipid of phosphatide type (Niemann-Pick's disease),
biochemistry of, 682, 683
case report, 680
juvenile form, 683
subacute form, 681
History/Historical trends
in MR, 532, 535, 536, 908
Homocystinuria
description of, 664
pyridoxine treatment, 663
Hospitals, general
(See also Community programs)
consultation,
neurologic & psychiatric, 797
hospital improvement project, 801
Hurler's disease
(See Gargoylism)
Hydrocephaly
in achondroplasia, 706
care of, 710
diagnosis of, 560
treatment,
drug, 710
shunt procedures
Hakim valve, 710
urinary appliance, 825
virus induced, 711
Hyperbilirubinemia
& ABO incompatibility, 602
etiology, 602
test for, 601
Hypercalcemia
misdiagnosed PKU, 658
Hyperglycinemia
w/ketoacidosis & leukopenia, 657
Hyperlysinemia
lysine pathway, 666
Hyperphenylalaninemia
maternal,
effect on fetus, 638
Hyperthyroidism
cortisol production rate, 688
Hyperuricemia
characteristics, 671, 672, 673
genetics of, 673
Hypervalinemia
valine metabolism in, 668, 669
Hypnosis
w/MR, 850
Hypoglycemia
& birth weight, 655
diagnosis,
Dextrostix test, 647, 656
tolbutamide tolerance test, 649
in erythroblastosis fetalis, 614
inst. MRs, 656
leucine sensitive, 654, 667
maternal, 667
neuropathological effects, 653
plasma-insulin response, 649, 650, 651
treatment, 647, 652
diazoxide, 648, 654
Hypoparathyroidism
idiopathic, 689
pseudo-, 689
transient congenital, 687
Hypophosphatasia
in twins, 677
Hypopituitarism
growth hormone treatment, 692
Hypothyroidism
(See also Cretinism)
cortisol production rate, 688
in mongolism, 779
Hypoxia
(See Anoxia)
Immunology
& chromosomal anomalies, 781
thyroid autoantibodies, 779, 780, 782
Incidence & prevalence
anencephaly, 712
brain damage, 618
congenital malformations, 809
dental problems, 991
hearing loss, 990
measles, 578
mongolism,
effect of age, 769
spinal bifida, 712
visual & hearing disorders, 556

Institutions for MR
administration, 986
admission,
commitment, 994
placement, 989
anthropometric measurements in, 836
architecture, 541
assessment,
audiometric, 861, 862
behavior & adjustment of residents,
adolescent, 827
assessment of, 827
verbal habits, 856
chromosome anomaly in, 760
dental health, 991
discharge,
community placement, 988
facilities,
general, 987
hearing loss in, 990
hypoglycemia,
incidence of, 656
medical care, 992
personnel,
attendant, 1001
psychiatric aides, 1000
volunteer programs, 998, 999
recreational programs, 980
rehabilitation, 958, 962
religion, 1024
research in, 855, 856, 863, 864, 866
resident training programs,
habilitation, 1001
language development, 855
operant conditioning, 996
social, 997
therapy programs,
family, 993
shadow, 830
visitation program, 995
Intelligence
channel capacity, 887
conceptual control, 890
development of,
Piagetian theory, 888
in inst. population, 836
a negative transfer, 871
in phenylketonuria,
effect of dietary treatment, 635, 637, 641
physical development,
in inst. population, 836
in mongoloids, 838
theory,
Piagetian, 888
stimulus trace, 889
Isovalericacidemia
case report, 674
Jaundice
ABO incompatibility, 602
Kentucky
care & services for MR, 1003
Kernicterus
(See Hyperbilirubinemia)
Klinefelter's syndrome
& birth month, 789
& human figure drawings, 904
mosaicism,
w/mongolism, 784
variant of, 788
Language
assessment of, 851
competence & performance, 852
habits, 856
in regular & special classrooms, 857
research, 856, 857
Laurence-Moon-Biedl syndrome
pathology of, 700
siblings w/, 699, 700
Law
(See Legislation/Law)
Learning
ability,
in b.i., 891, 896
channel capacity, 887
concept control, 890
in inst. adults, 863
conditioning,
instrumental, 879
operant, 893, 897, 996
discrimination, 869, 882
disorders, 883, 885
& emotional reaction, 831
incidental, 881
& motivation, 879, 880
paired-associate, 868
& practice, 875, 876
reinforcement, 869, 873, 874, 876, 877, 878, 879, 880, 881, 882, 892, 894
retention, 864, 870, 873, 895
& epilepsy, 884
& verbalization, 864
retroactive inhibition, 870
set,
acquisition of, 866
social, 951
stimulus satiation, 867
theory,
social, 951
transfer of, 871, 892, 896
Legislation/Law
& abortion, 812
national,
Community Health Services & Facilities Act, 1002
& sheltered employment, 965, 973
state,
Minnesota,
manual for public welfare, 1015
for screening metabolic disorders, 1014
Lesch-Nyhan syndrome
(See Hyperuricemia)
Lipids
galactolipid,
in PKU brain, 636
Lipoidosis, cerebral
familial neurovisceral lipidosis, 678

Liver disease
w/cerebral & renal abnormalities, 716
cystathioninuria in, 662
diagnosis of, 562
metamorphosis,
in PKU, 636
Lowe's syndrome
(See Oculo-cerebro-renal syndrome)
Manpower
pediatric training, 796
SWEAT program, 538
Marfan's syndrome
(See Arachnodactyly)
Maturation
muscle,
in b.i., 619
Meningitis, neonatal
etiological agent
enterobacteria, 590
Proteus mirabilis, 589
Mental age
& negative transfer, 871
Mental retardation
assessment, 551, 556
& blindness, 924
classification, 550
definition, 531
diagnosis, 547, 548, 549, 554
techniques for, 555, 557, 558, 559, 560, 561, 562
epidemiology, 563
general information, 531, 533, 534
history of, 532, 535, 536, 908
prevention, 564, 565, 566, 737
provision of services, 530
theories, 888
Metabolic disorders
(See also specific disorders)
ketoacidosis, 657
in MR c/w normals, 629
pathology of, 630
screening for, 682
state laws, 1014
Metabolism
brain, 818
folic acid,
& anticonvulsive drugs, 736
lead, 596
lipid, 679
protein, 818
serotonin, 632, 763, 773
Microcephaly
in anoxic & hypoglycemic Ss, 653
in pericentric syndrome, 749
in ring chromosome 18, 758
in spinal muscular atrophy, 698
Minnesota
public welfare manual, 1015
Moebius syndrome
& facial diplegia, 718
Mongolism (Down's disease)
biochemistry, 763
blood factors,
blood-group chimerism, 775
enzymes in, 776
gamma-globulins in, 777, 778
lymphocyte abnormality, 774
maternal thyroid antibodies in, 780
serotonin level, 763, 773
thyroglobulin, 781
thyroid autoimmunity, 779, 782
brain weight, 766
cell & organ growth, 744
dermatoglyphics, 763
enzyme activity in, 763
etiology,
age,
maternal, 769
paternal, 770, 771
parental consanguinity, 768
family study, 768
genetic component,
in Chinese, 762
cytogenetic study, 786
of father, 767
mosaicism, 762, 784
ring G, 761
w/sex chromosome anomaly, 784, 785
translocation, 762, 763, 776, 783, 784
trisomy, 762, 763, 767, 776, 778, 779, 783, 785
growth & development, 764, 838
brain, 767
hepatitis, 782
hypothyroidism in, 779
intelligence in, 838
Klinefelter's syndrome in, 784
Negro, 775
neurological aspects, 764
sodium concentration in, 772
Mortality
in prolonged pregnancy, 728
& parental smoking, 597
rate chart,
& classification, 550
Motivation
incentive variation, 879
& motor performance, 880
work performance, 952
Motor development
reaction time, 872
Multiply handicapped
description of, 831
education, 833
Muscular dystrophy
psychometric study of, 906
National Association for Retarded Children (NARC)
local,
Minneapolis, 1012
state,
Connecticut, 1007
Neonate/Neonatal
anoxia & hypoglycemia
effects of, 653

"at risk," 551, 552, 553
brain hemorrhage, 621
classification of, 550
infection,
diagnosis of, 594
malnutrition, 815
meningitis, 589, 590
mortality,
& prolonged pregnancy, 727
& obstetric problems, 564
sleep pattern, 732
toxicity, 597, 598, 599, 600, 601, 602
Netherlands
sheltered workshops in, 965, 967, 969
Neurocutaneous syndrome
characteristics of, 703
Neurological disorders, general
& facial expression, 718
New York
Civil Service employment, 975
Niemann-Pick's disease
(See Histiocytosis, lipid of phosphatide type)
Nigeria
measles,
incidence of, 578
Nursing, profession of,
public health, 800
Nutrition
deficiency,
& cell growth, 815
management of metabolic disorders, 646
& parental feeding, 1021
Ocular disorder/Infection
cateracts,
in glycogen storage disease, 675
Cockayne's syndrome, 691
in experimental allergic encephalomyelitis, 586
lens,
maldevelopment, 717
rubella, 573
in Lowe's syndrome, 717
retinal,
detachment, 720
Oculo-cerebro-renal syndrome
ocular pathology in, 717
Operant conditioning
(See Learning)
Parent/Parental
adjustment, 1017, 1018, 1020, 1022
agencies for, 1022, 1023
awareness of MR, 1017
counseling, guidance, 644, 793, 794, 1019
& feeding the child, 1021
smoking,
& perinatal mortality, 597
Pediatrician
& pediatric residence, 796
Performance
of premature c/w mature, 730
Perception
perceptual motor, 892, 893
shadow image, 830
visual,
field dependence, 894
Personality
assessment of, 827
improvement of, 953
YY syndrome, 787
Personnel
(See specific area of interest)
Pharmacology
& genetics, 745
Phenylketonuria (PKU)
behavior of Ss w/, 634
diagnosis of,
compulsory program, 646
reassessment, 633
dietary treatment, 646
effect of, 635, 637, 641
experimental, 643
biochemical effects, 642
& intelligence, 635, 637, 641
in Negroid, 645
maternal, 638, 639, 640
pathology,
histological & chemical, 636
psychosocial factors in, 644
tests for,
Phenistix, 633
Physical development
& intelligence
in inst. population, 836
in mongolism, 838
linear & skeletal, 837
Physical therapist
role of, 801, 841
Physical therapy
importance of, 620
Physician
& abortion, 812
& family of MR, 793, 794
role of, 533, 792, 795
Pica
& plumbism, 595
Planning, MR programs
grants,
listing of, 544
Plumbism
diagnosis of, 595
& pica, 595
in psychotic children, 596
Post-school adjustment
(See Adjustment/Personal-social)
Pregnancy
(See also Congenital anomalies; specific diseases)
complications of,
& supportive care, 564, 566
fetal survival, 728
& diabetes, 599, 600
hyperphenylalaninemia in, 638
pre-eclampsia, 598
prolonged,
outcome, 727

Prematurity
& brain hemorrhage, 621
management of,
c/w "small for dates," 731
& MR, 729
pathological sleep organization, 732
& performance level, 730
Protective services
need for, 1013
Pseudohypoparathyroidism
renal phosphate threshold, 689
Pseudoretardation
stupid-reader effect, 537
Psychiatric disorders
behavior patterns,
c/w PKUs, 634
& blood types, 617
graphic expression in, 829
lead absorption, 596
& nail-biting, 828
Psychologist
role of, 802
Psychotherapy
architecture,
effect of, 540
Radiography
of cretins' thyroid glands, 686
Recreation
camping,
day camp, 982, 985
resident, 983, 984
need for, 981
programs, 980
provision of, 979
research design in, 978
Refsum's disease
description of, 679
Regional center
programming, 1009, 1016
Rehabilitation/Habilitation, vocational
& architectural features, 960
assessment of,
vocational realism, 955
work tolerance levels, 957
adjustment, 847, 848
administration of, 974
facilities,
utilization of, 960
guidance & counseling, 976
job opportunities, 956
Civil Service, 975
occupational information, 976
philosophy & objectives, 965, 966, 972
placement, 954, 976
programs,
adult, 952
inst., 958, 962
pre-vocational, 956, 976
state, 953, 963
sheltered workshops, 961, 964, 965, 976
administration, 974
aims of, 966, 972
Germany, 971
Great Britain, 968, 970, 972
legal aspects, 973
& mixed handicaps, 969
in The Netherlands, 967, 969
social training in, 930, 970
staffing of, 971
standards for, 968
of social offenders, 959
teacher's role in, 948, 949, 950
trends in, 964
work performance,
& motivation, 952
& social learning theory, 951
Religion
education, 1024, 1025
Renal disorder
in cerebro-hepato-renal syndrome, 716
in hyperuricemia, 672
in oculo-cerebro-renal syndrome, 717
in Laurence-Moon-Bardet-Biedl syndrome, 700
Research
(See also areas of specific investigation)
animal, 642, 643, 711, 735, 810, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 882
centers in MR, 539
methodology, 868
models, 807
projects funded by VRA, 977
Rh incompatibility
(See also Blood incompatibility)
& hypoglycemia, 614
prevention of, 603, 604, 605, 606, 607, 608
Roentgenography
effect on fetus, 832
Rubella
& abortion, 569
clinical aspects,
bone abnormality, 575
hepatic lesions, 572
deafness from, 860
neurological abnormalities, 567
pathology of, 568
in ocular lens, 573
prophylaxis for, 571
test for, 570
viral morphology, 574
Rubinstein-Taybi syndrome
case report, 714
Runt's disease,
& rubella syndrome, 568
Sclerosis
tuberous (Bourneville's disease),
reappraisal of, 697
Season
& Klinefelter's syndrome, 789
Self-concept
in crippling & health handicaps, 833
& social variables, 844
Self-destructive biting
in hyperuricemia, 671, 672, 673

Sex
development,
& human figure drawings, 904
education, 931, 932
Silver's syndrome
elevated gonadotrophins in, 690
Sjogren-Larsson syndrome
w/exudative enteropathy, 719
Skin anomalies
subaceous nevi, 703
Skull deformities
in achondroplasia, 706
craniosynostosis, 704
lesions,
& brain scanning, 559
Sleep
& diagnosis of deafness, 555
disorders and activity, 732
of MR c/w normals, 808
Social relations
of adolescents, 845, 928
of MR c/w normals, 857
& recreation, 978
& self-concept, 844
trends in, 959
w/unpopular EMRs, 846
Social worker
& preschool MR, 804
role of, 803, 805
Sociocultural factors
deprivation, 851
& education, 831
general, 533
Sotos syndrome
(See Giantism, cerebral)
Speech
(See also Language)
articulation, 855, 858
program,
evaluation of, 854
Spina bifida
environmental relation, 727
genetics of, 713
incidence,
ethnic differences, 712
Spinal fluid
cytomorphology, 558
Spinal muscular atrophy
w/microcephaly & MR, 698
Student Work Experience and Training (SWEAT) Program
description of, 538
Sturge-Weber-Dimitri syndrome
(See Angiomatosis, trigeminal, cerebral)
Surgery
(See specific disorder)
in craniosynostosis, 704
Sweden
post-school adjustment
follow-up report, 848
special education in, 909
Syndrome, new
carnosinemia, 665
chromosome, 757
dwarfism w/MR & hypoplasia, 693
isovalericacidemia, 674
neurocutaneous, 703
pericentric syndrome, 749
varient of glycogenosis, 675
Teacher
day care, 802
& family of MR, 946
role,
w/family, 947
in habilitation, 948, 949, 950
as therapeutic agent, 947
Telangiectasis
ataxia telangiectasia
lymphocyte transformation in, 724
ovarian changes in, 723
Teratology
lysergic acid diethylamide (LSD), 814
potential teratogens,
during pregnancy, 813
theory of, 821
Testing
(See also specific area of interest)
history, 536
problems in, 536, 907
standardization, 898, 903
Tests/Developmental & Intelligence
Ammons Quick Test, 902
Bender Visual Motor Gestalt test, 901
Colored Progressive Matrices, 898
Denver Developmental Screening test, 903
Goodenough-Harris, 899
Peabody Picture Vocabulary Test, 899, 900
Stanford-Binet, 899
Wechsler Adult Intelligence Scale (WAIS), 898
Wechsler Intelligence Scale for Children (WISC), 889
Tests/Language
Illinois Test of Psycholinguistic Abilities, 851
Tests/Metabolic
(See specific disorders)
Tests/Personality
Devereaux Adolescent Behavioral Rating Scale, 827
Draw-A-Person, 904
Tests/Social
Children's Self-concept Scale, 844
Syracuse Scale of Social Relations, 844
Way I Feel About Myself, 844
Texas,
vocational rehabilitation program, 953
Theory,
Doman-Delacato, 939
Piaget, 888
stimulus trace, 889
of teratogenesis, 821
Toxicity
of alloxan diabetes, 810
of ammonia, 670
of bilirubin, 822

of lead, 595, 596
of magnesium sulfate, 598
of maternal diabetes, 599, 600
of maternal smoking, 597
Toxoplasmosis
fluorescence test, 593
in psychiatric mileau, 592
Transillumination
& skull lesions, 559
Tumors
cerebellar, 694
choristoma, 703
neuroblastoma,
treatment evaluation, 695
Twins
hypophosphatasia in, 677
mongoloid, 775
Tyrosinemia
in infancy, 661
Tyrosyluria
in infancy, 661
Ultrasound
clinical use, 561
United States Department of Health, Education, & Welfare
grants for MR, 544, 977
publications on MR, 545
University center
description of, 539
Vaccine
general info., 591
measles, 576, 577, 579
reaction to, 580
Vermont
brain damage in, 618
Viruses
(See also Rubella)
cytomegalovirus, 594
herpes simplex, 583, 584, 585
measles (rubeola), 578, 582
mumps, 711
myxovirus, 588
prophylaxis, 591
screening for, 594
varicella (chicken pox)
Vision
disorders of,
screening, 556
Vitamin
K analogue, 824
Vocational habilitation/Rehabilitation
(See Rehabilitation/habilitational, vocational)
Von Gierke's disease
(See Glycogenosis)
Welfare programs
(See Community programs, Protective services)
X-ray
(See Roentgenography)

U. S. GOVERNMENT PRINTING OFFICE : 1968 O - 299-809

MENTAL RETARDATION ABSTRACTS

Questions about the Clearinghouse service (except submission of information on current projects) should be addressed to:

Mental Retardation Abstracts
National Clearinghouse for Mental Health Information
National Institute of Mental Health
5454 Wisconsin Avenue
Chevy Chase, Maryland 20203

Requests to be placed on the mailing list for Mental Retardation Abstracts should be addressed to:

Publications Roster
Information Services Branch
National Institute of Mental Health
5454 Wisconsin Avenue
Chevy Chase, Maryland 20203

Requests for single copies and back issues should be addressed to:

Publications Distribution
Information Services Branch
National Institute of Mental Health
5454 Wisconsin Avenue
Chevy Chase, Maryland 20203

CHANGE OF ADDRESS OR REMOVAL OF NAME

Please affix Abstracts mailing label here and mail to Publications Roster, Information Services Branch, National Institute of Mental Health, 5454 Wisconsin Avenue, Chevy Chase, Maryland 20203. Thank you.

(Fill in below only for change of address.
Please print clearly.)

NAME: Initial Initial Last

Organization (Leave blank if none)

Number and Street Address

City State

Country (if other than U.S.) Zip Code (if U.S.)

I wish to discontinue receiving this publication.
Please remove my name from your mailing list. ☐

MAYO CLINIC LIBRARY 10532
MAYO CLINIC
200 FIRST ST SOUTHWEST
ROCHESTER MINN 55901

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTE OF MENTAL HEALTH
5454 WISCONSIN AVENUE
CHEVY CHASE, MARYLAND 20203

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF HEW

OFFICIAL BUSINESS

If you do not desire to continue receiving this publication, please CHECK HERE ☐; tear off this label and return it to the address below. Your name will then be promptly removed from the appropriate mailing list. MRA-4-2

National Clearinghouse for Mental Health Information
National Institute of Mental Health
5454 Wisconsin Avenue
Chevy Chase, Maryland 20203